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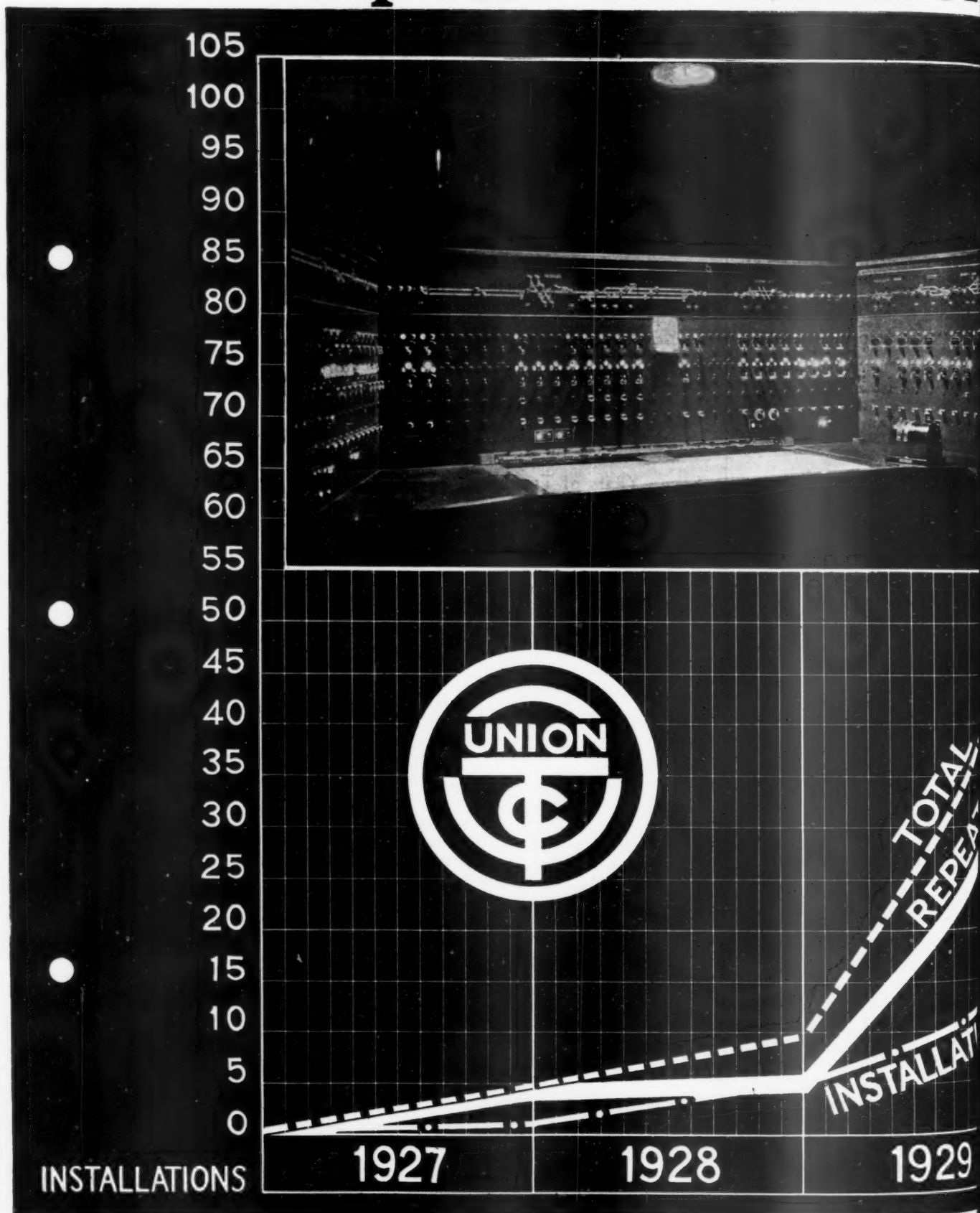
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Is the "Racket" Necessary in Business?

In their report upon the commission's investigation of "reciprocal buying," a summary of which was published in the *Railway Age* of January 23, Director William P. Bartel of the Bureau of Service of the Interstate Commerce Commission and Examiner John L. Rogers recommended that the commission should seek legislation by Congress to deprive the shipper of his present statutory power to route his freight, and also to authorize the commission "to require by order that purchases of any or all materials, supplies, equipment, or other articles shall be made from the bidder whose bid is the most favorable to the carrier or carriers, to be ascertained by competitive bidding under regulations to be prescribed by rule or otherwise by the commission." Railway officers, railway equipment and supply manufacturers, and shippers will await with interest the decision of the commission as to whether it will favor the legislation proposed.

The *Railway Age* is opposed to any increase in government regulation of business. The passage of legislation rescinding the present statutory power of the shipper to dictate the complete routing of his freight would not increase regulation. It would simply transfer from the shipper to the initial carrier the power to route freight beyond the line of the initial carrier. The proposed legislation to authorize the commission to require competitive bidding would increase regulation, and the *Railway Age*, which initiated and has been the principal agency in carrying on the campaign against "reciprocal buying," is opposed to it. There should not be any such government interference between buyer and seller. It would be harmful because it would inevitably tend to increase the emphasis placed upon price in buying and to reduce that placed upon quality, which usually is more important.

The Racket Called "Reciprocity"

The facts as to why the two kinds of legislation have been proposed should, however, be squarely faced by railway officers and those who sell equipment, materials and fuel to the railways. There is a wide difference between doing business in accordance with sound economic principles, and doing business in accordance with the principles of racketeering, and there is very much too much racketeering in what is called business. Those who use, and wish to continue to

use, the methods of the racketeer always are among the most clamorous in opposing and denouncing government interference in business, but they are the most responsible for it. They are always loud in criticizing politicians for such interference; but it is they who afford politicians the ammunition for demanding it.

In the ordinary phraseology of the market place "good business men" include all who have made a lot of money, but many men get rich principally or entirely by preying upon really good business men and upon society. A good business man, in the true sense, is one who succeeds because he is so efficient in managing production and sales that he gets a large market while giving at least as good quality or service in proportion to his prices as his competitors. A racketeer is one who resorts to force or some other means besides efficiency in production and selling to get business or money. Efficiency in production and selling is sometimes supplemented by racketeering, but that does not make the racketeering any less racketeering.

What Will the Shippers Do?

It is a practice as old as commerce for buyers to argue that those from whom they buy should, if practicable, reciprocate by buying from them, and it is a legitimate commercial practice. When, then, does so-called "reciprocity" become racketeering? It becomes racketeering when threats or promises are used to influence the prospective buyer to disregard the relationship between quality and price. The records of the recent "reciprocity" hearings before the Federal Trade Commission and the Interstate Commerce Commission are full of instances of this kind of racketeering; and, as Messrs. Bartel and Rogers indicated in their report, much more evidence of the same kind would have been forthcoming if railway officers had not been prevented from telling the entire truth by fear of having the traffic club used upon their railways by big shippers. Messrs. Bartel and Rogers were convinced, they said, that railway officers "silently hope that some action will be taken to relieve them of the pressure exerted by large shippers who also have something to sell to the railways," and "that the reason the carriers' witnesses did not voice such sentiments and give supporting reasons was that each carrier was afraid that if such testimony was given on its behalf its com-

petitors would remain silent and that the shippers involved would divert traffic from the carriers whose representatives gave the testimony."

The shippers do not want to be deprived of the legal power to route their traffic. Neither railways nor shippers want competitive bidding placed under the supervision and surveillance of the commission. What, then, are they going to do to stop the racketeering so extensively carried on to influence railway purchases? This question goes to the very heart of the subject of government interference with business.

It is illustrative of the entire situation that the traffic manager of a very large company which sells large quantities of materials to the railways, but which is opposed to the practice of "reciprocal buying," has said to the *Railway Age* that railway executives should unite to stop the practice. But it is shippers who are being threatened with deprivation of the power to route freight, and they as well as the railways are being threatened with regulation to require competitive bidding. Why, then, should not they do something to stop the racketeering? The National Industrial Traffic League is an organization the membership of which is composed of the traffic managers of chambers of commerce and large shippers, including practically all those who use the traffic club so efficiently on the heads of railway officers. Why should it not take the initiative in stopping the illegitimate use of the traffic club? Why "pass the buck" to the railways, which are the victims,—not the beneficiaries?

The Real Enemies of "Capitalism"

There is racketeering in government as well as business. This racketeering is not only one of the principal causes of so much government interference in business, but also one of the principal causes of the present depression. Business men are largely responsible for the rackets in government as well as in business, and because it is so vulnerable the railroad industry is the victim of more kinds of rackets in both government and business than any other industry. How many business men are favoring and defending subsidization and opposing regulation of carriers by highway and waterway, not to get lower rates by highway or waterway, but to force down their own rates by rail, regardless of the nationwide effects upon railway rates, earnings and service? How many of them run to state legislatures and Congress to get action favorable to their own industries or communities, regardless of the effects upon taxes and other factors determining the prosperity of all industries and communities? Rackets in government and business due to the efforts of business men to increase their own profits, regardless of the efficiency of their own production and sales methods, probably are as much responsible for the condition to which industry, commerce and finance in the United States recently have been reduced as to any other cause.

It is high time that leaders in American business began to recognize and concede such facts and to act

accordingly. The entire capitalistic system—that is, the system of private ownership and management of property in large units—is placed in danger by such conditions as now exist in this country, which are largely due to practices in business that are economically unsound. Private ownership of railways is especially endangered; and the present condition of the railroad industry is mainly due to the fact that so many persons who call themselves "business men," but who either are ignorant of sound business and economic principles, or have no regard whatever for the effects of what they do upon the industrial and commercial system of the country, have used all the methods of the racketeer in attacking railway earnings for their own selfish purposes. The *Railway Age* is a business paper, but all of its illusions as to the superiority of the virtue of business men as a class over the virtue of politicians as a class were long since destroyed by the racketeering practiced by business men as well as politicians upon the railway industry. It is not the selfish or socialistic politician, but the selfish and unscrupulous business man, who is the worst enemy of the capitalistic system of industry and commerce. It does not make a man any less a racketeer to belong to a country club and wear a tail coat and spats when he passes the plate in church on Sunday morning.

Real business men—those who try to succeed entirely by the exercise of efficiency that promotes the economic welfare of the public—should cease to treat as respectable those who are "successful" merely because they are efficient racketeers, and should, by organized action, stamp out bad business practices because, in the long run, they are bad business for everybody. This is especially true of reciprocal buying as it affects the railroad industry. The railroads are an essential industry. Whatever adversely affects them affects adversely the entire industry and commerce of the country. They are already so hamstrung by regulation that alone they cannot effectively resist those who use racketeering methods upon them. The railways should resist such methods unitedly and individually, in every way they can; but if business men will keep them so hamstrung by regulation that they cannot, as a practical matter, defend themselves without help, then business ought to help them do so.

Will the National Industrial Traffic League oppose legislation to deprive the shipper of power to route his freight? It undoubtedly will. Will it do anything to stop the use of the traffic club for purposes of racketeering? It probably will not. Its members want the best possible railway service, and most of the leaders of the organization undoubtedly will continue, as in the past, to encourage almost every practice and favor almost every policy tending to make the rendering of such service impossible. Undoubtedly most of the League's leaders will continue to carp about the weakness of railway managements in yielding to the racketeers who use the power of both traffic and government to force the railways to resort to wasteful excesses of competition; but as to trying to curb the racketeers

among shippers—well, they don't seem to believe in the principle, said to have been successfully applied in ancient Jerusalem, that the streets should be kept clean by having every man sweep away the dirt from in front of his own door.

Gulliver Among the Lilliputians

The issuance this week of the Interstate Commerce Commission's statistics of the revenues and expenses of the Class I railways for 1931 has afforded a complete outline of what happened to the railways in the worst year in their entire history. Can the railways come back? Undoubtedly they can; but comparisons of 1931 with previous years indicate how much must be done to enable them to come back.

As was anticipated, the figures show that relatively the greatest decline occurred in their net operating income, and that relatively the smallest decline occurred in their taxes. Their net operating income of \$531,100,000 was 58.3 per cent less than that earned in 1929, and the smallest earned since 1901. Their taxes of \$307,707,000 were 23.6 per cent less than they paid in 1929, and the smallest since 1922. Even this decline in their taxes was principally or entirely due to the reduction in their federal income tax caused by the reduction of their net operating income. The railways are the most over-taxed industry in the country, excepting, perhaps, agriculture. Under the wise and beneficent policies of government in this country, it has come to pass that citizens have so few rights that almost the only way they can get rid of exorbitant taxes is by getting rid of their incomes and property.

Total railway earnings in 1931 were less by \$2,123,000,000, or 33.4 per cent, than in 1929, and the smallest since 1917. Passenger earnings were 37 per cent less than in 1929, and the smallest since 1906.

Total operating expenses were less by \$1,295,000,000, or 28.4 per cent, than in 1929, and the smallest since 1917. Total expenditures for maintenance of property were less by \$711,400,000, or 34 per cent, than in 1929, and the smallest since 1917. This reduction of expenditures for maintenance was so much larger than the net operating income earned as to show that, in effect, all the net earned with which to pay fixed charges, and thereby avoid general railroad bankruptcy, was taken out of the physical properties.

The figures do not make a pretty picture, but the picture they do make ought to produce a profound impression upon all who are responsible for the present railway situation, and especially upon all—and that includes everybody—who can do anything to improve it. It is principally due to the depression; but it is far from being entirely due to the depression. It is largely due to the fact that agricultural leaders, business leaders and politicians have united in bind-

ing railway managements hand and foot with the red tape of bureaucratic regulation, and then joined in "cussing" railway managements because, in spite of such regulation, they have not run the railways better and beaten off various kinds of subsidized and unregulated competition.

It is a repetition of the story of Gulliver's adventures among the Lilliputians, and it was Dean Swift, the creator of Gulliver, who wrote the following:

"So naturalists observe, a flea
Has smaller fleas that on him prey;
And these have smaller still to bite 'em;
And so proceed ad infinitum."

The great railroad industry of the United States has been made the host of so many big fleas—as indicated by our editorial elsewhere in this issue on the "racket" in business—and these big fleas have been so stimulated to bite the railways by the biting of the smaller fleas—"and so proceed ad infinitum"—that the railway results of 1931 look very terribly flea bitten, indeed.

Barges and Taxicabs

The advocate of an inland waterway improvement is nearly always popular with a large element in the local community because most people cannot keep their minds off the "pork barrel" in considering the merits of his plan. The case he makes for better transportation facilities, enlarged markets for local industries, etc., is accepted at its face value because the project, instead of placing a burden on the community, will bring in outside funds that "will help business."

That the waterway enthusiast finds himself in a somewhat different position when his plan points to increased local taxes was brought out recently at Chicago, in a hearing relative to bridge clearances over the Chicago Sanitary and Ship Canal, which comprises the north or Lake Michigan end of the Illinois Waterway. When users of this waterway contended for the raising of bridges to provide greater headroom, they found that the local authorities were far from enthusiastic. A trustee of the Chicago Sanitary District reported the entire absence of funds with which to carry out the improvements desired. However, much more emphatic opposition was voiced by the engineer of the Chicago Plan Commission. His presentation of the cost for alterations to bridges, changes in street grades and resulting property damage was concluded with the statement that it would be cheaper for the city to stop the barges at the city limits and handle their lading across town in taxicabs.

This is not the first time that waterway improvements have resulted in a burden on local taxpayers, but, coming as it does at a time when they are in an extremely critical mood, this incident should serve as an object lesson in the real cost of developing our "natural highways of commerce."



The Wye Connection at Keddie, Main Line to Salt Lake City on the Right, New Line on the Left—The Third Leg is in a Tunnel

Builds 112-Mile Line in 15 Months

Thorough surveys expedite construction of
Western Pacific's connection with
Great Northern in California

By T. L. Phillips

Principal Assistant Engineer, Western Pacific

[The opening of the Western Pacific-Great Northern line in Northern California on November 10, was featured in the *Railway Age* of November 14, and an account of the construction of the Great Northern's portion, from Klamath Falls to Bieber, was given in the *Railway Age* of February 20.—EDITOR.]

THE Western Pacific portion of the newly constructed line extends from Keddie, a point on the main line of the Western Pacific in the Feather River canyon, 281 miles east of San Francisco, to Bieber in "Big Valley," Lassen county, a distance of 112 miles, all in Northern California.

Reconnaissance surveys of the territory between the Western Pacific main line in the Feather River canyon and Big Valley were started on February 25, 1929. Three locating parties were organized and placed in the

field in March: one with headquarters at Greenville, covered the territory extending from Westwood to the Western Pacific main line, a distance of about 40 miles; the second with a portable camp was given the territory between Westwood and Halls Flat, a distance of 36 miles; and the third party, also with a portable camp, covered the territory between Halls Flat and Bieber, a distance of about 36 miles. Each of these parties consisted of a locating engineer, an assistant locating engineer, an office engineer, and sufficient field and office force (ranging from a total of 20 to 30 men each) to keep the maps, profiles and estimates up daily. It was urgent that a suitable line be developed at an early date so that profiles, quantities and a completely itemized estimate of cost could be filed with the Interstate Commerce Commission. Travel over the county highways was difficult and in order to get an early start in the spring on all sections of the line, one complete locating party of 25 men, equipped with a portable camp, and field and office requirements, was moved over the road from Westwood to Halls Flat, a distance of 40 miles on sleds drawn by caterpillar tractors on account of the snow and mud encountered at that season of the year.

Heavily Timbered Country

The greater portion of the territory through which the line extends is heavily timbered, with large yellow and sugar pine, fir and second growth of all these species. The formation of the soil, with the exception of the first four miles north of Keddie, which is laminated argillaceous shale, is largely volcanic, consisting of basaltic lava flow, boulders and volcanic ash. Lassen Volcanic National Park is easily accessible from stations on the line, the Park boundary being within 10 miles, and



These Twin 72-in. Corrugated Culvert Pipes were Struttled Before Placing the Fill

Lassen Peak only 20 miles distant by air line. Mount Shasta as well as Lassen Peak are clearly visible from several points.

The greater portion of the route lies across the drainage. Consequently several trial grade lines were run by the use of vertical transit angles, and those appearing most favorable were followed with accurate preliminary surveys along which a wide scope of close topography was taken. Topography was taken with topographic Abney hand levels; the slope angles were recorded in the field, and level contours were interpolated in the field office and placed on the preliminary line maps on a scale of 1 in. equals 100 ft.

The located line was projected on the contoured preliminary maps and from this projection a complete detailed profile was made, showing ground and grade lines, curvature, drainage openings, bridges, tunnels and highway crossings, excavation, embankment, and clearing quantities and estimated classification. With the aid of this projected profile, an estimate was compiled in detail covering all phases of the work and embracing the applicable Interstate Commerce Commission primary accounts. Location surveys were started on all three sections of the line before the estimate was entirely completed. By accurate scaling, careful calculation and instrumental surveys, the projected line was established on the ground and was fully located by the latter part of October, 1929.

Take Contractors Over the Location

A public hearing on the applications was held before an examiner of the Interstate Commerce Commission in San Francisco from November 13, 1929, to November 27, inclusive, and on June 9, 1930, the commission authorized the construction of the line. The acquisition of rights of way was undertaken immediately. In order to save time and to afford a thorough knowledge of the proposed line, all of the contractors who were invited to bid on the work were conducted over the line in a four-day tour, starting on July 10. The contractors with their engineers and various representatives constituted a party of 40 persons. Most of the trip was made with automobiles, as the line was generally accessible from the county and Forest Service highways. However, saddle horses were used in places and some of the trips were made on foot. Each member of the contractors' party was furnished with a set of specifications, profiles, alignment maps and a map of the general vicinity, showing existing highways and general topography. Where-



A Drag-Line Operation in Soft Ground Near Mile-Post 9½

ever contact was made with the line, the entire party came to a stop, and the engineers' survey station was announced for convenient reference to the maps and profiles. The proposed work in the immediate vicinity was briefly outlined and discussed and the contractors were given as much time as they desired to make a detailed examination. The party then proceeded to the next accessible point on the location until the entire line was covered in this manner.

Bids for the work of clearing, grading, tunnelling, bridges, culverts, track laying and ballasting were received and opened on July 28, and the contract was awarded on August 1, 1930, to the low bidders, the Utah Construction Company and W. A. Bechtel Company, who bid jointly. The general contractors sublet the entire line in sections from 2½ to 36 miles in length, and equipment was moved to the work with dispatch while camps were being constructed. The first actual excavation was started at Mile Post 17½ near Greenville, on August 16, 1930, and progress was rapid. At the peak of the work in the spring of 1931, the construction plant included 27 power shovels and drag lines, with all necessary trucks, cars, compressors and other machinery and equipment. In general, the equipment was worked 18 to 24 hours daily.

Salvage Timber in Clearing

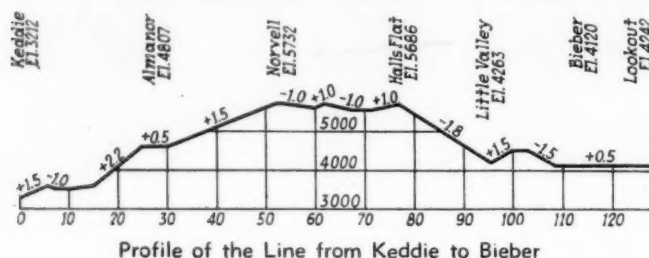
Right-of-way clearing was important, because of the heavy pine forests. Much of the line is within the boundaries of national forests, and in order to avoid

Part of the Line Was Built Through a Heavy Stand of Timber



delay to the grading and incidental work, all clearing had to be completed and the necessary burning done before May 1, 1931. Merchantable saw timber cut from the right-of-way, except that needed by the contractors in their work, was sawed into standard mill lengths and piled along the right-of-way. A total of 10,500,000 ft. b.m. of timber was thus cut into logs and is now being loaded on cars and transported to the Red River Lumber Company's mill at Westwood, where it will be sawed into lumber.

All excavation, except for tunnels and foundations below water level, was classified as solid rock, loose rock or common excavation. Tunnel excavation carried



Profile of the Line from Keddie to Bieber

an independent price per cubic yard regardless of the character of material or formation, and foundations below water level were excavated at cost plus 10 per cent. All of the excavating machines, except one power shovel, were on caterpillar traction.

Roadway Standards

The roadbed was graded to a width of 18 ft. on embankments, 20 ft. in solid rock excavation, and 22 ft. in loose rock and common excavation, except that in the territory between Westwood and Halls Flat, where the snow is expected to drift, cuts were excavated to a width of 22 ft., with slopes of $1\frac{1}{2}:1$ regardless of the character of materials encountered. Generally, 15 per cent was added for shrinkage on the sides of embankments, and from 5 to 15 per cent on the tops of embankments where practical.

Eleven tunnels were originally planned, but during construction it was decided to eliminate two of them. Tunnel 10 in Wolf Creek canyon was taken out as an open through cut of 256,000 cu. yd., the material being used to fill the adjacent canyon of Sheet Camp creek where it had been planned to build a steel viaduct. Tunnel 6 was eliminated and excavated as an open cut because the material encountered did not appear stable enough for a timber lined tunnel. In heavy ground sections the tunnel portals and lining were constructed of concrete. Other concrete portals were constructed for protection against fire. All timber used for tunnel portals and lining is either Port Orford cedar or redwood. The nine tunnels constructed range from 400 to 1,070 ft. in length.

There are eight major bridge structures ranging from 150 to 900 ft. in length and from 30 to 225 ft. in height, all of which have steel superstructures on concrete substructures. No difficulty was experienced in securing suitable foundations on solid material. The few exceptions, small drainage structures under embankments, are corrugated metal pipe ranging from 18 to 84 in. in diameter in lengths up to 300 ft. The use of corrugated pipe culverts in place of concrete saved time and expense on account of the scarcity of concrete aggregates in the immediate vicinity and the lower cost of transporting the pipe rather than the aggregates, cement and form lumber necessary for concrete structures. The corrugated pipe culverts were carefully installed. All pipes

of 48-in. diameters and larger were braced with vertical struts that were left in place until the embankments were complete. All culverts regardless of size were well bedded and backfilled.

Materials such as concrete aggregates, cement and timber for outside structures and tunnel lining, were hauled from delivery points on existing railroads to the site of the work with motor trucks. Steel for bridges and track materials were necessarily transported over the railroad tracks as they were laid.

Material Deliveries Carefully Scheduled

During the early progress of the work, a program of track laying and ballasting was prepared, and work was concentrated on certain sections so that the grading and structures were completed well in advance of the time called for in this schedule. Track laying was started north from the junction with the Indian Valley Railroad at Crescent Mills in May, 1931, and was in progress on four sections of the line at one time, namely; north from Keddie, north from Crescent Mills, south from Westwood and north from Mason. The delivery of structural steel for bridges and viaducts was scheduled to insure its arrival well in advance of the time when it would be needed, and delays on this score were at a minimum. The section of track from Mason to Bieber was the longest and the last completed, the date of closing being November 1, 1931.

The rail laid in all tracks is 85-lb. (CF&I Sec. 850). The ties are 8 in. by 9 in. by 8 ft. Oregon fir and the track is fully tie plated on mainline and through turnouts with 8-in. by 10-in. plates canted 1:29. The main track is equipped with an average of six rail anchors to



A Cut in Volcanic Ash—Tractor-Drawn "Chariots" of 12-yd. Capacity Were Used Here

a 39-ft. rail. Main-line turnouts are No. 10 with an 81 ft. lead. Back-track turnouts are No. 8½ with a 71½ ft. lead. There are 14 passing tracks each 4,600 ft. in length laid 15 ft. center to center with the main track. Wye tracks have been provided at Keddie, Westwood, Norvell, Halls Flat and Bieber.

Ballasting was started in the latter part of July, 1931, and carried on daily until completion in the early part of November. The material applied on the first 6.8 miles north of Keddie is a screened gravel from commercial plants at Oroville, Cal., on which the average haul was 80 miles. The rest of the line was ballasted

with a gravel excavated from a deposit near Chester, on the Red River Lumber Company's line. The ballast was excavated, loaded and hauled about 12 miles by the lumber company and delivered to the Western Pacific at Red River Junction. The main track has 8-in. of ballast and other tracks 6 in. under the ties. The work of ballasting was a part of the general contract; the Western Pacific furnished all ballast cars and locomotives and hauled and spread the ballast; all labor necessary, except train and engine crews, was furnished by the contractor.

Service Facilities

Water stations with 60,000-gal. tanks and water columns placed between the main track and sidings were provided at Greenwood, Almanor, Westwood, Norvell, Halls Flat and Little Valley. There is also a 60,000-gal. tank and a 75,000-gal. tank at Keddle, and a 100,000-gal. tank at Bieber. Fuel oil facilities have been provided at Keddle, Westwood and Bieber.

The wye connection with the main line at Keddle is somewhat unusual on account of the sharp transverse slopes and horizontal curvature of the Feather River canyon. The main line of the Western Pacific and westerly wye connection of the Keddle-Bieber line are on high steel viaducts where they cross Spanish creek, while



An Example of Neat Packing in Stone at the Portal of a Timber-Lined Tunnel

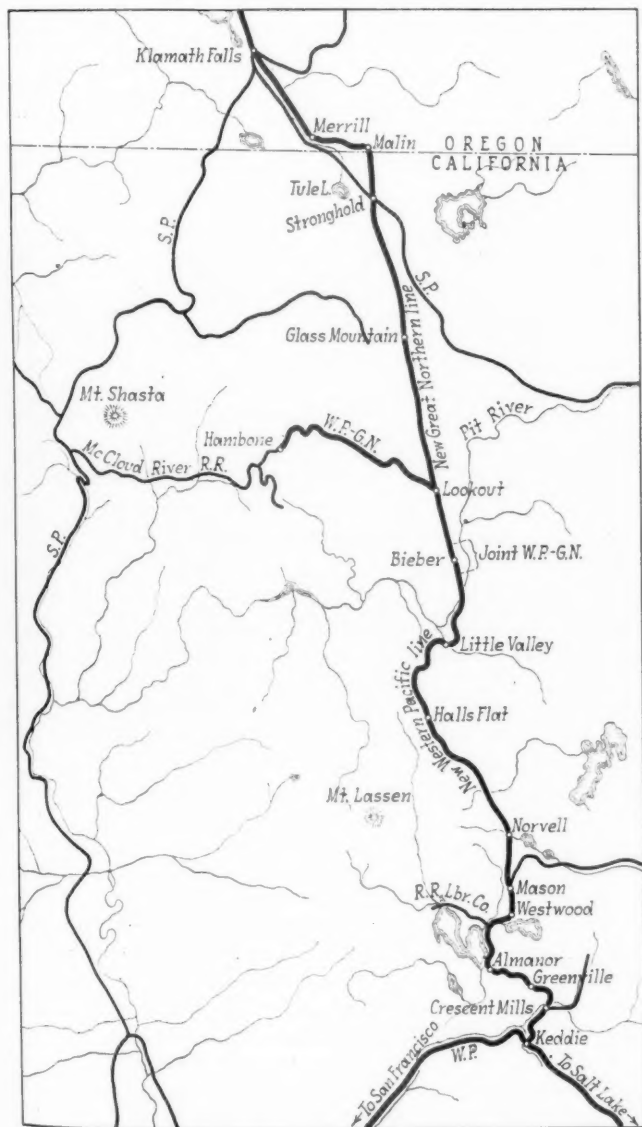
the easterly wye connection passes through a tunnel 700 ft. long. The construction of a junction yard at Keddle required the excavation of 450,000 cu. yd. of material which was used for filling some of the yard area and for a change in the main line track. This junction yard is now provided with a passing track; three 100-car yard tracks; crossovers, a house track, and tracks to serve a four-stall roundhouse with a 120-ft. turntable as well as an oil sump, an oil house, a storehouse, a sand house and repair yards.

The connection with the Great Northern at Bieber embraces the joint yard and terminal facilities, and includes about 4½ miles of the main track, located on the floor of Big Valley. The grades are very light. The yard, all of which is adjacent to main line tangent track, includes four 4,000-ft. yard tracks, a wye, a track scales, an icing platform, oil sumps, an oil house and storehouse, a roundhouse, repair yards, depots and stockyards.

The following general items were taken from the contractors' estimates as of November 30, 1931: 1,932 acres of clearing, 4,075,000 cu. yd. of excavation, 3,610,000 cu. yd. per 100 ft. of overhaul (500 ft. free haul), 108,026 cu. yd. of tunnel excavation, 2,501 M ft. b.m. of tunnel timbering, 35,764 cu. yd. of concrete and rubble masonry, 358 M ft. b.m. of timber in bridges, 11,737 lin. ft. of piling, 3,538 tons of structural steel and 20,664 lin. ft. of pipe culvert.

The surveys, estimates and construction were under the direction of the writer, reporting to Colonel J. W. Williams, chief engineer. The locating engineers were H. V. Johnson, J. R. Graham and R. A. Hollenbeck, the latter serving also as construction engineer. H. M. Smitten, bridge engineer, was in charge of all structural designs.

THE CENTRAL OF NEW JERSEY, which, some weeks ago, put into effect a plan for providing breakfast for commuters patronizing its lines, by selling coffee and crullers at popular prices on the upper decks of all railroad ferry boats operating during certain morning hours between its Jersey City, N. J., terminal and Liberty street, New York City, has now extended this plan to include Saturday luncheons. By request of patrons, the railroad, beginning on February 13 and continuing each Saturday thereafter, will sell coffee and sandwiches on all train boats running between Liberty street and Jersey City during the period from 11:45 a.m. to 2 p.m.



Location of the New Line Between Keddle and Bieber

Proposed Changes in Consolidation Law

WASHINGTON, D. C.

A MENDMENT of the consolidation provisions of the interstate commerce act so as to bring within the jurisdiction of the Interstate Commerce Commission for approval or disapproval any acquisition of control of a railroad which would result in bringing it into affiliation with, in control of, or under the management of another railroad, by holding company or otherwise, is proposed in H. R. 9059, on which hearings are being held before the House committee on interstate and foreign commerce. One provision in the bill also would authorize the commission to determine whether the holding by any person of any part of the stock of any carrier (unless acquired before February 28, 1920, or with approval of the commission), is or is likely to be the cause in whole or in part of preventing or hindering the carrying out of any part of the commission's consolidation plan or of impairing the independence of the systems provided for in the plan, and if it finds that such holding has or is likely to have such effect, to order him to divest himself of the stock.

Chairman Rayburn explained that the bill, as well as H. R. 5324 which it has superseded, was drafted in the presence of himself, Representative Parker, Dr. Splawn, and Commissioner Eastman. This is one of the three major bills the committee hopes to pass at this session, the other two being to revise Section 15a and to regulate bus transportation. The purposes of the bill were explained to the committee by Dr. W. M. W. Splawn, who last year conducted a comprehensive investigation of railroad holding companies for the committee, and Joseph B. Eastman, chairman of the legislative committee of the Interstate Commerce Commission, which recommended such legislation in its annual report, following the recommendations made in the Splawn report, House Report No. 2789.

Eastman Testifies

Commissioner Eastman, testifying on February 19, said that H. R. 9059 undertakes to carry out the commission's recommendations, but goes somewhat beyond them in proposing a further revision of section 5 of the interstate Commerce act. In section 5, he said Congress manifested a clear purpose to place the consolidation or unification of the railway properties into a limited number of systems completely under the control of the Commission. Experience has shown, however, that as it stands section 5 does not accomplish that result. On the contrary unifications may be, and in important instances have been, effected without any supervision whatever by the commission.

This situation has repeatedly been brought to the attention of Congress by the commission. In so doing, the commission has not been seeking to enhance its own power and authority, he said, but if it was the intent to subject the matter of unification completely to commission control, it has not been accomplished, and "it is that fact which we have sought to make clear."

An important weakness of section 5, as it now stands, he said is that it places no control upon the activities of so-called holding companies in effecting unification of railway properties into systems and he cited as illustrations the activities of the Pennsylvania and Van Sweringen companies to show the possibilities in this direction. The commission has certain jurisdiction un-

der the Clayton act over acquisitions of control, but the enforcement of its authority to break up such combinations after they have been put together is hedged about by many difficulties, and probably no such authority exists under the Clayton act in the case of certain of the unifications.

"Nor is it an answer to say that the situation can be straightened out in connection with proceedings in which authority may be sought to effectuate the so-called 4-system unification plan in eastern territory, if that plan is approved by the commission. What the railroads and the holding companies may be willing to do may be one thing if the commission approves the 4-system plan, and quite another thing if it disapproves in whole or in part. And the power of the commission to require a readjustment of the situation which the holding companies have brought about without supervision, by attaching conditions to its grants of authority under section 5, has not as yet been defined by the courts. Legislation of the kind proposed in H. R. 9059, or having a similar purpose, would greatly strengthen the hands of the commission in dealing with this situation, as well as prevent future similar situations from arising.

"H. R. 9059 proposes to authorize, under commission supervision, every legitimate and desirable method of combining railway properties, including consolidations, mergers, purchases, leases, operating contracts, and acquisitions of stock control of carriers by other carriers, and also by a single holding company. Such combinations must be in harmony with and in furtherance of the plan of consolidation, and the commission must find that they will promote the public interest before approving them. The commission is also given full authority to prescribe modifications and just and reasonable terms and conditions. It is further provided that if union through the medium of a non-carrier holding company is authorized by the commission, the latter shall have jurisdiction over the capitalization of such holding company and power, in its discretion, to regulate accounting, inspect books and records, and require reports. The provisions of the present paragraph (6) with respect to the capitalization of the consolidating company are omitted, because the public interest is completely protected in this respect by section 20a of the interstate commerce act.

Eastman's Idea of Consolidation

"In my judgment there are better ways of putting railroads together than by leases or by acquisitions of stock at high prices coupled with an increased burden of debt. If it can be shown that the union of two railroad properties will benefit both—and there is no other sufficient reason for unifications—then I have never been able to understand why it should be impossible for the directors of the two roads to sit down together, agree upon the terms of union, and submit a plan to the stockholders for their approval accompanied by a complete and convincing statement of the advantages to be gained. Such a plan could take the form of a consolidation, a merger, or a purchase of properties, and in that event it could be accomplished without any substantial expenditure of cash or increase in debt and through an exchange of stock in appropriate ratio. A plan of this character could be accomplished in times of depression as well as in times of prosperity.

"Under section 5 as it now stands, however, there is insufficient incentive or even opportunity for such transactions. The provisions of paragraph (6) do not clearly provide for mergers or purchases of properties, (Continued on page 366)



The Car Used in the Spring Tests

Synchronous Truck Spring Movement Produces Destructive Forces

Comparative tests on road service develop quantitative value of vertical shocks with standard coil springs and show coil-elliptic spring sets to be free from harmonic build-up

By Donald S. Barrows

Vice-President, The Symington Company

THE engineering and test departments of the New York Central Lines have for a number of years been studying the riding qualities of freight cars for the purpose of analyzing and if possible correcting the conditions responsible for damage to lading and equipment through unabsorbed end shock, vertical vibration and excessive car-body roll. In 1925 and for several years following, a series of tests known as the "Ashtabula Tests" were run to compare the characteristics and influence on car body and lading of a wide variety of truck-spring arrangements ranging from plain A. R. A. coils, special coils and an increased number of standard coils to various combinations of coils and friction elements and also to determine the influence of various forms of lateral motion devices.

Early in these tests it was made clear that while the relative movements of truck parts and body could be accurately recorded, the prime necessity was for recording instruments which would show directly the magnitude of the external forces acting upon the car body and lading. At the start of these tests, no instruments were available which did not influence the records by their own characteristics.

In the course of later investigations of draft-gear performance on the impact test plant at the Waugh-Gould

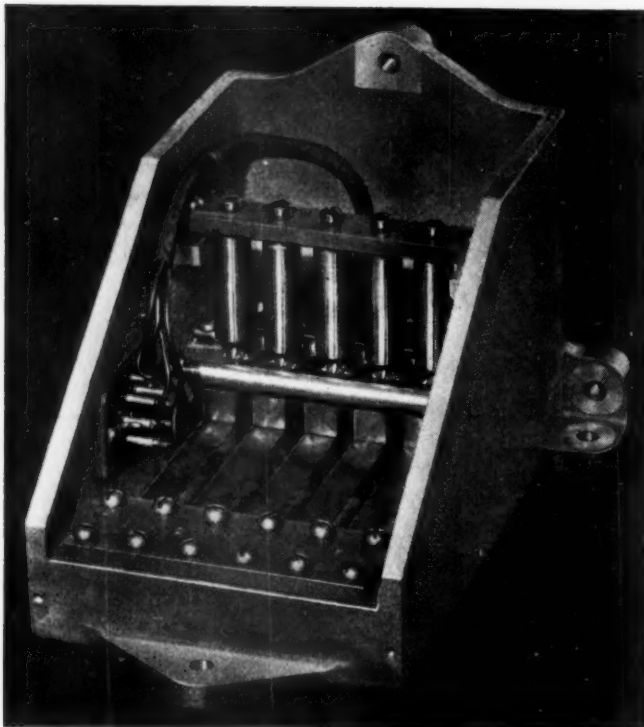
Laboratory, Depew, N. Y., there was developed an instrument known as a lading dynamometer which consists of a series of blocks set on edge and hinged at one corner, the first block in the series having a very small factor of stability or resistance to overturning from an external impulse, the other blocks increasing progressively in stability. An empirical measure of the protective capacity of a draft gear was thus established by the number of blocks turned over or upset by end impact.

As a result of experience with this lading dynamometer, there has been developed by William E. Gray, A. R. A. draft gear engineer of Purdue University, an instrument based upon the same general principle but much more compact in its form and more sensitive in its readings. It is also more convenient to operate as it is not necessary to restore or reset the indicating hammers after impacts, as is the case with the lading dynamometer.

This instrument is designed to measure the intensity of vertical shocks affecting car or lading and to record the number of shocks of each different intensity within any desired range. Essentially, it consists of a series of small horizontal hammers all of equal mass and pivoted so that the heads of these hammers may move downward in response to suitable external impulses. They

are held in a horizontal position against upper stops by small coil tension springs which may be adjusted to any desired pressure. The preferred calibration, and that which was adopted for this series of tests, requires that the hammers be progressively adjusted so that the first hammer should indicate by its downward movement the intensity of a shock which would momentarily increase the weight of lading to 20 per cent above gravity and that succeeding hammers should be adjusted to indicate respectively the equivalent of 40, 60, 80, 100 and 120 per cent momentary increase in effective weight.

These hammers are therefore designated as .20g, .40g, and so on. To speak of a temporary increase in weight is of course not scientifically accurate, but it explains the actual effect both on the supporting car body and on the lading itself of vertical service shocks. Accordingly a shock which actuates the .20g hammer causes a 100-lb. package momentarily to weigh 120 lb. In terms of meat hung on hooks in a refrigerator car, the shock which



The Gray Accelerometer

caused the .80g hammer to move away from its stop caused a 200-lb. quarter of beef momentarily to pull 360 lb. on its supporting hook.

The permissible downward movement of each of the pivoted hammers is only .005 in. at which point a pair of platinum contacts close an electrical circuit which energizes a magnetic counting device.

The accuracy of the Gray instrument for determinations of the character described herein is due to the fact that the hammers which indicate acceleration are always in a state of rest to receive and indicate succeeding shocks and to the further fact that there is no possible synchronous relation between the period of truck springs and the movements of the hammers. Full spring mounted instruments previously tried have always given readings which were influenced by the periods of their own springs, these readings being occasionally exaggerated and made less useful through synchronism between instrument springs and truck springs.

Between August 11 and October 2, 1931, the New York Central Lines conducted for the Merchants Des-

patch Transportation Company a series of impact and road tests to determine the magnitude of the forces in yard and road service which might contribute to lading damage and to analyze the reduction in such damage through the use of improved forms of draft gears and truck springs.

The cars used were standard M.D.T. 40-ton refrigerators and the first series of tests was made on the Depew impact plant mentioned above, the stationary and

Designation of Test Runs

Direction	Division	Mileage	Original, new wheels		Wheels specially selected for trueness	
			A.R.A. coils	Coil-elliptic	A.R.A. coils	Coil-elliptic
East	DeWitt to Selkirk....	140	1-A	3-A	5-A	Not made
	Selkirk to New York.	138	1-B	3-B	5-B	7-B
West	New York to Selkirk.	138	2-A	4-A	6-A	Not made
	Selkirk to DeWitt....	140	2-B	4-B	Not made	Not made

Designation of Supplemental Runs

Direction	Division	Mileage	Coil-elliptic springs	Gross weight, lb.	Maximum speed, m.p.h.
West	New York to Selkirk..	138	8-A	130,000	45½
	Selkirk to DeWitt....	140	8-B	85,000	49
	DeWitt to Waynesport.	76	8-C	85,000	43

moving car each being loaded to 85,000 lb. gross. Besides the lading dynamometer and the Gray instrument described above, other recording devices were used but of these others, those contributing records of value were a spring motion indicator mounted on the truck and carrying a large half dial, the pointer of which swinging back and forth over a quadrant, showed in magnified form the magnitude of relative vertical motion between bolster and side frame, and a spring-motion accumulator or integrating mechanism, one of which was attached to each truck side frame and actuated by the downward movement only of one end of the truck bolster, thereby recording the total in inches of all the downward movements of each nest of truck springs during the test run.

Besides measuring the influence on lading of direct end shocks at switching speeds of from two to ten miles per hour with draft gears of different capacities and lengths of travel, the impact tests were designed to de-

Recapitulation of Accelerometer Record

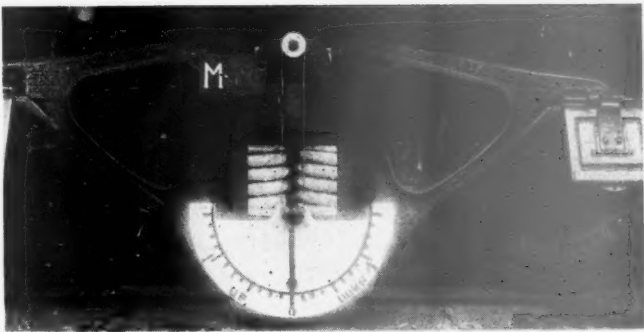
Intensity of shock	Type of Spring		
	A.R.A. Coils Original run, 972 miles	Coil Elliptic Original run, 694 miles	Supplemental run, 354 miles
.20g	35,615	340	809
.40g	4,255	...	1
.60g	713	...	...
.80g	164	...	...
1.00g	48	...	...
1.20g	5	...	...

velop the magnitude of the vertical component from horizontal end force. Prior to these tests, this vertical component had been guessed at as varying from zero to many times the magnitude of the horizontal force. It was found that the highest vertical component was only approximately 40 per cent of the end force and that the magnitude of this vertical component is influenced to only a minor degree by the type of truck springs used. It is thought that the vertical component for any particular type of car and ratio of lading to spring capacity is probably constant but that it may vary widely with different cars and lading. The effect of this secondary vertical impulse is naturally absorbed more quickly with truck springs involving some means for dampening the normal resilience of the springs themselves.

In addition to the recording instruments and the dead lading, several bags of cinders representing fresh beef, and two actual—and later odorous—specimens of the latter were hung from the hooks to determine if horizontal impacts in switching service could be charged with damaging this type of lading.

It was found that the standard 2½-in. travel Waugh-Gould No. 403 draft gear closed at a colliding speed of 6½ miles per hour. This gave a sill pressure of approximately 425,000 lb. and therefore a horizontal acceleration factor of five ($425,000 \div 85,000 = 5$). At this speed and with this type of draft gear, the resulting vertical acceleration was just sufficient to break a 400-lb. test cord from which was suspended a 200-lb. bag of cinders. The vertical acceleration factor was therefore two, or 40 per cent of the horizontal factor.

With both test cars equipped with Waugh-Gould ST-600 gears having 4-in. inward travel and a capacity of 40,000-ft.-lb. the colliding speed required to close the gears was about 10 miles per hour. It was determined that at speeds not exceeding the closing speed of each type of gear, neither the horizontal ends shocks directly nor the vertical components thereof indirectly could be charged with any considerable proportion of damage to



The Spring-Motion Indicator

that the comparative performance of the truck springs under investigation should not be influenced by any other departure from standard practice.

In addition to the Gray accelerometer, the car was equipped with a number of other instruments among which were the following:

Two sets of lading dynamometers consisting of graduated blocks arranged to overturn under horizontal shocks of definite magnitudes.

Gray Accelerometer Records

		Runs with Original New Wheels		Number of Shocks					
Direction	Division	Run	Spring group	.20g	.40g	.60g	.80g	1.00g	1.20g
East	DeWitt to Selkirk.....	1-A	A.R.R. coils	4,190	263	9	0	0	0
		3-A	Coil-elliptic	36	0	0	0	0	0
	Selkirk to New York.....	1-B	A.R.R. coils	3,430	392	25	0	0	0
		3-B	Coil-elliptic	59	0	0	0	0	0
West	New York to Selkirk.....	2-A	A.R.A. coils	5,240	1,160	375	71	19	0
		4-A	Coil-elliptic	14	0	0	0	0	0
	Selkirk to DeWitt.....	2-B	A.R.A. coils	3,351	590	41	0	0	0
		4-B	Coil-elliptic	0	0	0	0	0	0
Runs with Specially Selected Wheels									
East	DeWitt to Selkirk.....	5-A	A.R.A. coils	3,640	328	55	12	5	0
		7-A	Coil-elliptic	..	..	..	..	..	..
	Selkirk to New York.....	5-B	A.R.A. coils	5,699	352	4	0	0	0
		7-B	Coil-elliptic	231	0	0	0	0	0
West	New York to Selkirk.....	6-A	A.R.A. coils	10,065	1,170	204	81	24	5
		...	Coil-elliptic	....	..	..	..	..	..
Supplemental Runs									
West	New York to Selkirk.....	8-A	Coil-elliptic	280	1	0	0	0	0
	Selkirk to DeWitt.....	8-B	Coil-elliptic	160	0	0	0	0	0
	DeWitt to Wayneport.....	8-C	Coil-elliptic	369	0	0	0	0	0

suspended lading of this character. It was also found that the 4-in. selective-travel gear with its capacity temporarily reduced to 28,000-ft.-lb. was probably better adapted for the protection of moderately loaded cars in yard service than was the full-capacity gear of the same type.

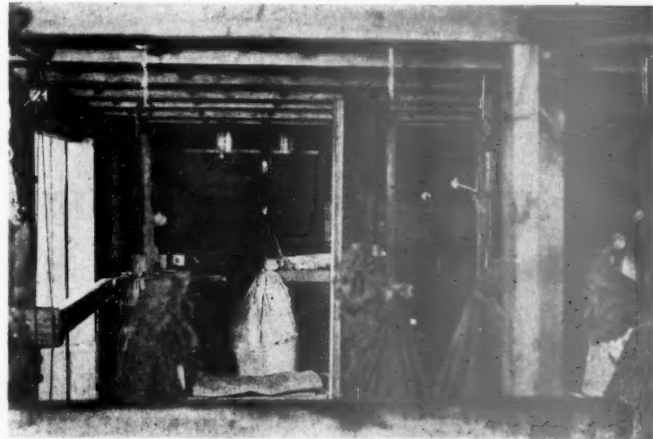
When the test cars were equipped with coil-elliptic truck springs, it was found, as expected, that the number of secondary oscillations following the initial vertical movement resulting from the vertical component of horizontal end shock was materially reduced. While this is relatively unimportant in single collisions, it is desirable that any vertical bolster movement which might contribute to lading disturbance should have ceased before the occurrence of such secondary horizontal impacts as might be occasioned either from the successive collisions of uncoupled cars or from the reaction of draft gears closed by the initial horizontal impact, lest synchronism should amplify a secondary vertical oscillation to a magnitude greater than that of the initial movement.

Study of Harmonic Bolster-Spring Oscillations

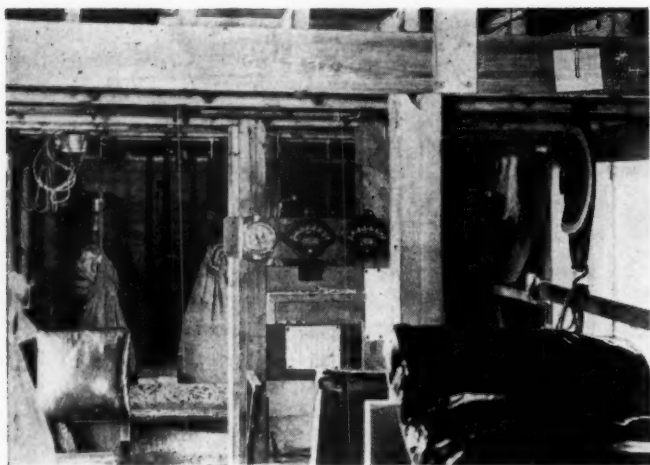
After the completion of the impact tests M.D.T. car No. 5266 was put into condition for road test, the selective-travel draft gears being removed and the standard travel Waugh-Gould No. 403 gears reinstalled in order

Bags of sand or cinders weighing 100 lb. each. Spring-motion totalizers attached to each end of each bolster and arranged to record the total of all downward movement.

The road tests were run on the main line of the New York Central from DeWitt, N. Y., through Selkirk, N. Y., to New York City and return, thus reflecting track conditions on the Mohawk, Hudson and Electric



Test Bags Suspended in the Car



The Instruments Inside the Car

divisions. On all runs the test car was hauled in regular fast-freight trains. The loading of the test car consisted of 26,000 lb. of sand in bags for convenient handling. This weight of lading was adopted because it was found to be the average net load carried in this type of car.

For the first round trip from DeWitt to New York the trucks were equipped with standard 40-ton A.R.A. coil springs. The second round trip was made with no change other than the substitution of coil-elliptic spring groups* for A.R.A. coil-spring sets. The analysis of the comparative performance of the two spring arrangements requires that the three classes of major determinations be studied separately. These are (1) Gray accelerometer records which list the respective numbers of movements of the accelerometer indicators which are graduated from .20g to 1.20g by intervals of .20g, (2) number of supporting cords of the sand bags representing sides of beef which were broken, and (3) total downward bolster movement as recorded by the totalizers.

The question having been raised during the test as to whether the wheels under the test car were within the acceptable limits for rotundity and eccentricity of mounting, the wheels and axles were removed at the termination of that section of the test runs listed as trip 4-B, and new wheels and axles checked as to rotundity and mounting within .05 in. were applied and certain sections of the test were rerun. The original and supplemental trips or sections of the test runs were designated as shown in the accompanying table.

In another table will be found a tabulation of the Gray accelerometer records for the original and supplemental runs.

Damage to fragile lading such as ripe fruit can be expected to begin when shocks of .20g intensity are registered. A great many repetitions of shocks of this intensity might in due course tear meat down from the hooks, but they can probably be classified as "light" shocks. Shocks of .40g intensity may be called "medium," of .60g "heavy," of .80g "severe," while shocks of 1.00g or higher may be called "violent."

The table showing recapitulation of the Gray accelerometer record gives striking testimony as to the breaking up of harmonics and control of excessive movement by the coil-elliptic spring group. It will be noted that with coil-elliptic truck springs there were no indications from the Gray instrument beyond the intensity of .20g and only 340 of these in 694 miles of operation. The

record of the A.R.A. coils for all intensities of vertical shock seems to furnish definite proof that plain helical coil springs selected for capacity only and without any study of the damaging effect of practically full recoil and of the development of cumulative movement through synchronization between normal spring cycles and the passing of rail joints at various speeds or the effect of high rotative speed of imperfectly mounted or balanced wheels or those not of uniform diameter at all points, are the primary cause for damage to lading and rolling equipment and are undoubtedly contributing factors towards track damage.

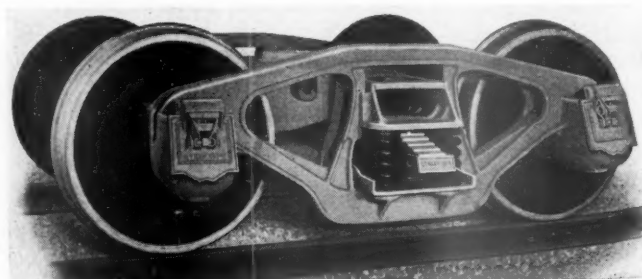
Cumulative Bolster Movement 50 Ft. Per Mile

To summarize the records obtained from the bolster-motion totalizers, it was found that the average total vertical movement of each bolster when supported on A. R. A. coils was 578,295 in. in 972 miles of operation. This amount of bolster movement is equal to 9.1 miles or practically one per cent of the distance the car traveled. It is also equivalent to an average downward movement of nearly 50 feet per mile of operation. When mounted on coil-elliptic springs, the total average movement in 694 miles of operation was 91,756 in. or at the rate of only 11 ft. of movement per mile. The ratio of bolster movement between the two truck spring arrangements was therefore approximately as $4\frac{1}{2}$ is to 1. If column and bolster wear can be assumed as in proportion to relative bolster movement, then this ratio becomes significant from the standpoint of truck maintenance.

In considering the reduction of bolster movement caused by the use of the combination spring group, it will be appreciated that this is due less to the reduction in initial movement caused by the first impulse than to the elimination of secondary oscillations characteristic of free springs having the same natural cycles. The prevention of these secondary oscillations is probably due primarily to the use, in the same group, of springs whose combined cycle does not harmonize with external influences and secondarily to the absorption of energy through friction between the adjacent leaves of the elliptic springs. The practical elimination of secondary oscillations removes one of the primary causes of cumulative spring action or the building up progressively of an amplitude greater than would be caused by the unaided initial impulse. As the combination of these two types of springs gives resultant capacity and deflection curves which are not straight lines as is the case with helical coils alone, but actual curves, it follows that the combined group provides an automatic means for the prevention or breaking up of synchronism.

The Waugh-Gould lading dynamometers listed above gave readings confirming in all respects those produced by the more sensitive Gray accelerometer, so a recital of these readings in this article will be unnecessary.

It will be understood that the 100-lb. bags of sand or



Truck Equipped with Coil-Elliptic Springs

* This spring arrangement was developed and is patented by the Symington Company.

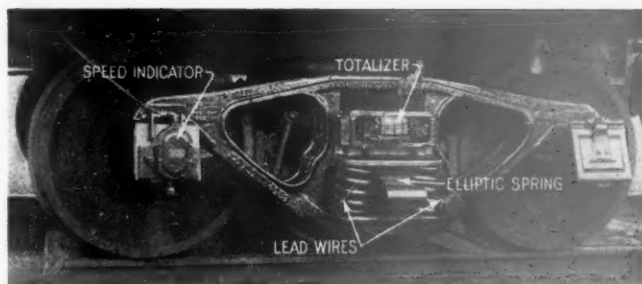
cinders were the more economical and uniform representation of sides of beef hung from hooks in the usual manner. During the test they were also more satisfactory to the observers from an esthetic or olfactory standpoint. On trip 1-A six of these bags were hung on cords of 200 lb. calibrated capacity and one bag on a 400-lb. cord. This trip was run on A.R.A. coil springs. In the first 20 minutes of the run fifteen 200-lb. cords were broken and as this condition threatened to continue throughout the test to the physical exhaustion of the attendants, all the cords were changed to 400-lb. capacity. During the remainder of trip 1-A and in trips 1-B, 2-A and 2-B a total of 416 miles, 21 of the 400-lb. cords were broken. During runs 3-A and 3-B of 278 miles total, and using the coil-elliptic spring group, six bags were rehung on 200-lb. cords and one on a 400-lb. cord. Five 200-lb. cords and none of the 400-lb. cords were broken during this distance. For the return trips 4-A and 4-B with coil-elliptic springs all bags were hung on 400-lb. cords and none was broken. Over this same section of the road eleven 400-lb. cords were broken by the A.R.A. coils.

The cord test is, however, not a true measure of the relative merits of the two spring groups because no computation can be made as to the number of cords which would have been broken by A.R.A. coils, had it been possible to replace all broken cords instantaneously, and as the Gray accelerometer records are constant and reflect the conditions which cause cord breakage, the final conclusions from this series of tests are based mainly on the readings of that instrument.

Definite Critical Speeds Are Found

The highest speed reached during these regular tests was 49 miles per hour. In the supplemental runs described later herein a speed of 53 miles per hour was reached for a brief period. It was observed throughout the tests of the A.R.A. coil springs that the speeds of 11, 21 and 42 m.p.h. were critical and that for speeds within two or three miles on either side of these indicated averages, there would be excessive bolster movement and car-body roll. At around 11 miles, this action, although noticeable, was not violent. At 21 miles vertical bolster movement increased noticeably, frequently accompanied by car-body roll, while at the 42-mile zone the vertical movement frequently became violent.

During the test of the coil-elliptic spring group, the tendency towards synchronization in these same speed zones could be felt by the observers but this tendency in each case was immediately quieted through the control exercised by the characteristics of the spring combination and it was definitely agreed by the observers that throughout the entire speed range of the test, there is



A Test Truck Equipped with Instruments

no effective critical speed for the coil-elliptic springs, or, in other words, no speed at which spring oscillation is successively built up to cause damage to equipment or lading, or inconvenience to the observers.

As the matter of rail lengths is of importance in the study of the problem of spring synchronization, it should be noted that on certain divisions traversed by the test car, the rails are 33 ft. long and on others 39 ft. long. The records indicate that the critical speeds for the A.R.A. plain coil springs were the same on all divisions.

As an indication of the effect on equipment of uncontrolled spring action, it is interesting to note that during the tests of the A.R.A. springs, eleven waste grabs occurred through momentary complete release of pressure on the journal while during the coil-elliptic spring tests there were no waste grabs.

Following the completion of all of the scheduled test runs, the question was raised as to whether a critical speed for the coil-elliptic springs might be found either at higher speeds with the same weight of lading or at similar speeds with a heavier lading. Accordingly two supplemental runs were made to determine these points.

Coil-Elliptic Spring Sets Completely Free from Harmonics

The test car with coil-elliptic truck springs and loaded to 130,000 lb. gross, or within 6,000 lb. of axle capacity, was run from New York to Selkirk on November 12 at speeds varying from zero to 45.5 miles per hour, the speed for a considerable portion of the run being at or near 32 miles per hour which it had been suggested might be "critical" for coil-elliptic springs under full rated load. The car ran with characteristic smoothness and there were no unusual indications at the 32-mile speed. At 43 miles per hour the Gray accelerometer registered a single movement of .40g intensity.

At Selkirk the load was reduced to the previous 85,000 lb. gross and ran smoothly to DeWitt at speeds from zero to 49 miles per hour. At DeWitt it was transferred to another train and run to Wayneport, eight miles of the distance being covered at speeds between 50 and 53 miles per hour. A predicted critical speed at 52 miles did not materialize and at no time did the Gray instrument record a vertical force in excess of .20g.

To summarize briefly the conclusions reached from the impact tests first described in this article, it seems that the vertical force resulting from the end impact of normal yard collisions does not exceed in magnitude 40 per cent of the direct end shock and that with colliding speeds of 10 miles per hour or less, the vertical component is not severe enough to bring down meat from the hooks. It may easily be severe enough to cause damage to certain types of lading well braced against end displacement but more susceptible to vertical shocks, and as the maximum elimination of any shock to lading should be the ultimate aim in car designing, the use of truck springs tending to minimize the ampli-



Coil-elliptic Spring Group

tude and duration of vertical bolster oscillations is distinctly worthwhile.

The impact tests showed as expected that draft gears of 4-in. inward travel materially reduce equipment and lading damage from yard collisions at the same switching speed or permit an increase in switching speeds of approximately 50 per cent over that permissible with gears of normal capacity and standard travel, without any increase in damaging effect. It also appeared from these tests that while increased inward gear travel was desirable regardless of car weight or capacity, the latter gear characteristic might to advantage vary with the weight and permissible lading of the equipment. This conclusion of course relates only to a study of collisions approximating yard service and may require modification as a result of the study which some roads are making as to the measure of draft-gear protection required in long train operation and under all expected methods of brake application.

In summarizing the road tests, it was conclusively demonstrated that the vertical shocks occurring at critical speeds with coil truck springs only are sufficiently violent to be the direct cause of damage to fragile lading and in particular of the tearing of meat from the hooks.

A suitable combination of coil and elliptic springs, correctly proportioned for the maximum car loading and with the ratio of elliptic spring to total spring capacity selected with reference to the average weight of car body and lading absolutely prevents the building up through synchronism of excessive spring action with resulting damage to lading and equipment and on the car tested prevented car-body roll by curing the primary cause for such action.

The coil-elliptic spring group in its most practical combination with the familiar type of bolster and side frame meeting all design test requirements of the present A. R. A. specifications, and with both types of springs working in parallel, is definitely new, regardless of the relative antiquity of the component elements. Through the utilization of familiar elements there is presented no new and uncertain maintenance factor. The long effective life of coil and elliptic springs is a matter of common knowledge and it is believed that this simple spring combination offers the most economical solution of the important problem of reducing excessive damage to lading and equipment.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended February 13, which included a holiday in some parts of the country, amounted to 562,465 cars, losing most of the gain it had made the week before. As compared with the corresponding week of last year this was a decrease of 158,224 cars and as compared with 1930 it was a decrease of 330,675 cars. While miscellaneous loading showed an increase of over 6,000 cars, as compared with the week before, this was more than offset by the decrease in coal. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

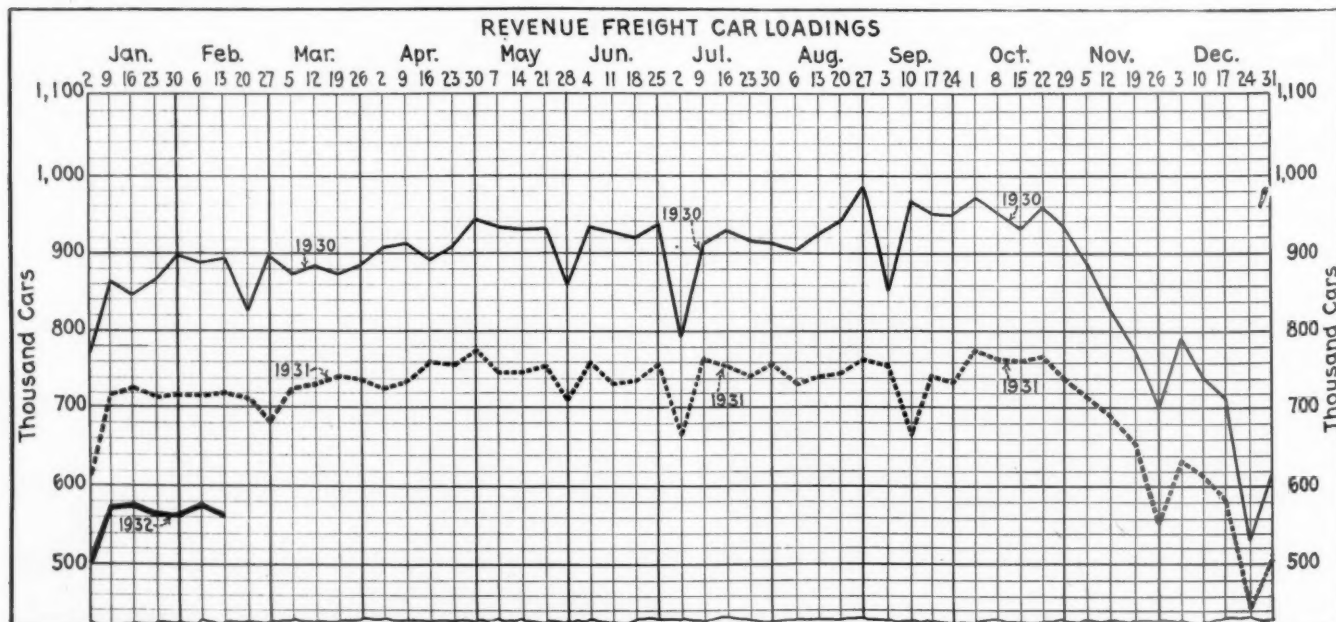
Week ended Saturday, February 13, 1932

Districts	1932	1931	1930
Eastern	126,813	164,357	203,451
Allegheny	112,118	147,522	179,890
Pocahontas	37,623	43,658	56,521
Southern	87,636	112,268	141,536
Northwestern	64,482	87,964	107,309
Central Western	85,195	105,936	129,536
Southwestern	48,598	58,984	74,897
Total Western Districts	198,275	252,884	311,742
Total All Roads	562,465	720,689	893,140
Commodities			
Grain and Grain Products	32,023	41,279	44,734
Live Stock	18,754	23,033	25,888
Coal	110,916	148,209	180,987
Coke	5,676	9,192	11,674
Forest Products	19,747	34,883	59,216
Ore	2,853	5,899	8,905
Mdse. L.C.L.	186,569	212,610	239,432
Miscellaneous	185,927	245,584	322,304
February 13	562,465	720,689	893,140
February 6	574,756	719,053	886,701
January 30	561,157	719,397	898,835
January 23	562,938	715,474	862,346
January 16	573,276	725,212	847,155
Cumulative total, 6 weeks	3,407,096	4,312,953	5,250,638

The freight car surplus on January 31 amounted to 741,864 cars, an increase of 939 cars as compared with January 14. This included 380,777 box cars, 283,440 coal cars, 31,549 stock cars, and 15,939 refrigerator cars.

Car Loading in Canada

Car loadings for the week ended February 13 amounted to 41,010 cars. This was an increase over the previous week of 970 cars, which was more than the normal seasonal increase and consequently the index number rose from 70.17 to 71.12. Compared with load-



ings for the sixth week last year, the total was down by 5,946 cars, merchandise being lighter by 1,855 cars, miscellaneous freight by 1,338 cars, pulpwood by 1,450 cars and grain by 1,063 cars. The only increases were —coal, 1,422 cars, and ore, 39 cars.

The index number for merchandise loading showed a slight gain, rising from 86.92 for the fifth week to 87.47 which, however, was below the index numbers for the previous weeks.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
February 13, 1932	41,010	22,261
February 6, 1932	40,040	20,738
January 30, 1932	40,880	20,519
February 7, 1931	46,956	29,167
Cumulative Totals for Canada		
February 13, 1932	240,752	123,126
February 7, 1932	269,138	159,300
February 8, 1930	327,287	213,824

Eastman Still Defends Rate Base Plan

WASHINGTON, D. C.

AN opinion that the railway executives and representatives of the security owners used bad judgment in supporting the proposed new rate-making rule of H. R. 7117 in preference to that of H. R. 7116, which includes the Interstate Commerce Commission's "rate base" substitute for Section 15a, is expressed by Commissioner Eastman in a statement filed with the House committee on interstate and foreign commerce in connection with the hearings closed on February 12 on the proposed revision of 15a. Although Commissioner Eastman had stated at the opening of the hearings that a majority of the commission now preferred the shorter and simpler form of its "flexible" rate-making rule, and although most of those who testified at the hearing indicated opposition to the rate base scheme, Commissioner Eastman filed a final statement in further explanation of H. R. 7116 in an effort to clear up what he declared to be misunderstanding of its plan and indicating that while the commission sees no occasion to insist on the rate base plan being included in the law, in the face of opposition, "some such barometer will, in my judgment, have to be set up by the commission in any event." He also declared that H. R. 7116 is intended to produce the same results as H. R. 7117 and that the only difference in the two bills is that H. R. 7116 undertakes to set up for public observation a barometer of earnings. The proposal was set up, he said, as a means of further assurance to the carriers and investors.

Mr. Eastman indicates a belief that the railroads are coming to a willingness to rely more on investment than on cost of reproduction as a rate base and says that "essentially the base used is an approximation, generously and liberally arrived at, of the real investment in carrier property, less such amount as is reserved for depreciation." His statement follows in part:

While the briefer form of bill, namely, H. R. 7117, is acceptable to the commission and we are not in any way insisting on H. R. 7116, there are certain comments which I should like to add in regard to the rate base plan which the latter bill contains. Mr. Bledsoe was very fair indeed in his comments upon the making and regulation of freight rates. In his discussion of valuation, however, he held fast to the time-worn railroad formula that the "value" of railroad property is measured by current cost of reproduction and the present value of land, minus depreciation and plus "going value." This formula has been pressed upon the commission by the railroads since our valuation began. It is to Mr.

Bledsoe's credit that he adheres to it at a time when opportunists in the railroad and utility field are beginning to discard it, because of the unfavorable results which it is likely to produce in a period of low and falling prices.

The commission has never accepted this formula, and does not now accept it. The recent decision in the Richmond, Fredericksburg & Potomac recapture case discusses it fully. * * * The lawyers of the commission are prepared to support and defend that decision in court, and we fully believe that Mr. Bledsoe's formula will not be sustained.

When it comes to the making of rates, however, Mr. Bledsoe practically throws his valuation formula into the discard and goes over to the investment basis. I quote the following from his testimony:

* * * "I do not anticipate if this recapture question were disposed of that there would be any real controversy in the future as to value, unless the commission made rates so extremely low that they did not yield a fair return, I might say, upon investment of the carriers in the properties. I have used investment for comparison, as I think that is the fair thing to do, and I do not believe that you can find any instance when carriers have insisted, I am certain that I have never insisted, that carriers were entitled to rates on the basis of the high prices prevailing in 1919 or 1920."

The same idea underlies the rate-base plan which H. R. 7116 contains. I have been accused by some of attempting to bring about public ownership and operation of railroads in all manner of devious and cunningly concealed ways. The most effective way to promote that end, in my opinion, would be to work for heavy increases in freight rates under present conditions, the speedy consolidation of the railroads into a very few systems, and acceptance by the courts of the extreme valuation doctrines urged by the carriers. On the other hand, if investors and carriers really wish to promote the cause of private ownership and operation, they could do no better than to urge the rate-base plan reflected in H. R. 7116, because it is a reasonable and practicable plan for guiding public regulation along constitutional lines. Private ownership and operation will be furthered by adhering to what is reasonable and practicable and eschewing what is unreasonable and impracticable. It is too much to expect, perhaps, that investors and carriers will be able to see this. Nevertheless, it is true.

As I endeavored to explain in my opening statement, the rate-base plan seeks to achieve in a reasonable and practicable way precisely the ends at which the valuation decisions of the Supreme Court are, upon analysis, found to be directed. H. R. 7116 is intended to produce the same results as H. R. 7117. The only difference in the two bills is that H. R. 7116 undertakes to set up for public observation a barometer of earnings. Some such barometer will, in my judgment, have to be set up by the commission in any event. It was done in the general rate-increase cases prior to 1920, although then absence of the data which our valuation work has since made available rendered it necessary to use the more imperfect check of return on the book investment of the carriers in road and equipment.

The testimony in these hearings indicates much misunderstanding of the rate-base plan. Essentially the base used is an approximation, generously and liberally arrived at, of the real investment in carrier property, less such amount as is reserved for depreciation. A legitimate criticism, indeed, is that it is too generous and liberal an approximation. Mr. Benton stresses the point that it will include the investment in a good many ill-conceived and unwisely constructed carrier properties which would be unable to earn any substantial return under any rates. This is true; but full allowance can be made for that fact in determining the fair average return on the aggregate rate base, as fair return is defined in the bill. It is that definition which makes H. R. 7116 and H. R. 7117 essentially the same, so far as the ends at which they are directed are concerned.

The argument is made that the rate-base plan would introduce additional possibilities of litigation, in comparison with H. R. 7117. On the contrary, H. R. 7116 does not require the commission to adhere to any inflexible standard. It merely sets up that standard as a barometer and guide, and recognizes the fact that economic conditions will necessarily involve deviations from it. There are no greater opportunities, in my judgment, for constitutional attack on H. R. 7116 than exist in the case of H. R. 7117.

However, this barometer or guide was set up for public observation in H. R. 7116 as a means of further reassurance to the carriers and the investors in their securities. Apparently they do not regard it in that light. This may be, and I believe is, bad judgment on their part, but in view of their position, no reason exists why the commission should insist upon H. R. 7116 in preference to H. R. 7117.

R. B. A. Asks Repeal Of the Valuation Act

WASHINGTON, D. C.

AN ARGUMENT for repeal of the railroad valuation act of 1913, which is now Section 19a of the interstate commerce act, has been addressed to Chairman Rayburn of the House committee on interstate and foreign commerce by Frank W. Noxon, secretary of the Railway Business Association, by way of comment on the testimony of Commissioner E. I. Lewis before the committee on February 12.

"Such repeal, we believe," said Mr. Noxon, "is an important step in the constructive policy embodied in the substitutes for the rate-making rule, Section 15a, now pending before you. With all but unprecedented unanimity you have been urged by the elements affected to repair the blunder of 1920 in specifying the security-holder as beneficiary of the rate rule by transferring the emphasis to the transportation user's need of service. In our judgment what more than anything else has prevented the establishment of a safe revenue level has been general resentment against the so-called guarantee. To eradicate that resentment is the object of the Railway Business Association in advocating an adequate-transportation rule in place of a rule of fair return. We are anxious to eliminate every vestige of pretext for anyone's seeing or suspecting a guarantee. We maintain that it is futile to purge the act otherwise of special solicitude for the security-holder while valuation is retained. Made familiar through litigation and controversy, to most casual observers valuation is a symbol of rate-making for the benefit of the security-holder. Its erasure from statute, practice and the public memory is indispensable in the endeavor to succeed, where we have failed under 15a, in keeping our railroads vigorous and progressive under the pending amendments.

"The most impressive phase of the testimony for the Interstate Commerce Commission on valuation was the source; and it seems to us that in this instance, both on the merits of the argument and on a proper discount of the commissioners' view as that of interested witnesses', no matter how honorably and humanely interested, the decision should go against them."

In rebuttal of Mr. Lewis' argument Mr. Noxon said in part:

1. Valuation is an imaginary, not a real factor in passing on security issues. The bond-buyer has no curiosity whatever about the "valuation" of railroad property. His sole concern is the prospect of earnings with which to pay him his interest and principal. At random I placed my finger on a railroad tentatively valued by the commission in a stated year and then upon another of about equal valuation and vintage. One is in receivership, the other prosperous. For 12 years the commission has been sanctioning issues without knowing what was the legal valuation or even itself knowing what it thought was the valuation.

2. Valuation is obsolete as evidence in court proceedings because confiscatory railroad cases are never brought and never will be. The confiscation cases are gas, water, street carfares—all charges by monopolies each selling one uniform service within a community. The railroad situation is complicated by competition, multiplicity of commodities handled and routes traversed, so that revenue rate cases since 1903, long before 15a, have consisted in the study of average income for groups of roads as a whole. Confiscation cases are impracticable. Economic evolution has repealed valuation.

3. Every need to which the commission might apply valuation can be met in other ways or has ceased to be a real need. No citation was given of a single respect in which the

many millions expended on valuations have been or will be warranted in results for the public. The commissioner enumerated miscellaneous uses for valuation needless to be marshalled in argument if security issues and confiscation cases involved a purpose actually vital.

4. Valuation means nothing to the railroads but expense. Mr. Lewis thinks railroads are vitally interested in it. It was counsel for the Association of Railway Executives who initiated the proposal for repeal, and no railroad came before you to oppose it.

As a measure of economy, both governmental and railroad, the repeal of valuation is in line with the national program. Repeal unfortunately would lay off the valuation force of more than 1600. We think your committee is warranted in surmising to what extent the members of the Interstate Commerce Commission have been consciously or unconsciously influenced by kindness of heart to search for plausible pretexts. The valuation appropriation for the current year is \$3,554,368. In the 1933 budget the estimate is \$3,233,231. Mr. Lewis frankly limited his prediction of ultimate curtailment to one half, declaring that valuation would never be finished, since it must be brought up to date annually. In this time of imperative economies the valuation force should command consideration as sympathetic as do other federal employees, but no more.

I. C. C. Fuel Hearings Move To Pittsburgh

HEARINGS in connection with the Interstate Commerce Commission's investigation of railway fuel practices (Ex-Parte 104, part 1) moved to Pittsburgh, Pa., on February 23 after the close, on February 18, of the New York sessions which extended over 16 days. Carriers responding at Pittsburgh were the Pittsburgh & West Virginia, the Monongahela, the Montour, the Union (of Pennsylvania), the Lake Terminal, the Newburgh & South Shore, the Monongahela Connecting, the Conemaugh & Black Lick, the Pittsburgh, Shawmut & Northern and the Pittsburgh & Shawmut. Closing testimony at the New York hearings included the presentations of the Buffalo, Rochester & Pittsburgh, the Buffalo & Susquehanna, the Western Maryland, the Pennsylvania, the Reading, the Lehigh & Hudson River, the Ulster & Delaware and the Lehigh & New England.

B. R. & P. and B. & O.

Prior to January 1, when the B. & O. took over the operation of the B. R. & P., it was the policy of the latter to purchase its fuel under contract from on-line mines. This was the testimony of Edward T. Monroe, formerly general purchasing agent of the B. R. & P., and C. H. Dyson, fuel agent of the B. & O., who now has charge of fuel purchases, has thus far made no change in the previous policy. Approximately 80 per cent of the B. R. & P. fuel requirements has for some time been purchased through the Rochester & Pittsburgh Coal Company which receives a differential of 10 to 15 cents a ton above the price paid other on-line operators. The differential was defended on the basis of the quality and preparation of the coal and the desire to strengthen a contact which would at all times assure the B. R. & P. of a reliable source of fuel supply.

Like the B. R. & P., the Buffalo & Susquehanna is now operated by the B. & O. under an operating agreement and in this case also, Fuel Agent Dyson of the B. & O. has as yet made no change in the previous fuel buying practices. E. J. Urtel, former purchasing agent, testified that it was the practice of the Buffalo & Susquehanna to purchase its fuel from the mines of the

Buffalo & Susquehanna Coal & Coke Company, a subsidiary of the Powhattan Coal & Coke Company which latter the B. & S. controls. The B. & S. Coal & Coke Company, the witness continued, is paid a price equal to the lowest price at which it sells fuel to other railroads. Because of this stipulation Mr. Urtel was somewhat surprised to learn from I. C. C. Attorney M. C. List that the Delaware & Hudson was buying coal on contract from the B. & S. Coal & Coke Company at a price lower than that paid by the Buffalo & Susquehanna. The B. & S. Coal & Coke Company, another witness testified, has paid no dividends in recent years; it has operated at a loss throughout the past four or five years.

Western Maryland

Coal from all 71 mines on the Western Maryland has been approved for locomotive fuel on some section of the line, E. R. Rouzer, superintendent of transportation, testified. Fuel buying, formerly handled by the president, is now under the jurisdiction of W. T. Stringer, special representative of the president. Mr. Stringer stated that coal from all but two operators, who have contracts, is purchased on spot or running order bases. Sixty-five per cent is ordered direct from operators and the remainder through sales agencies. Prices are fixed for each district after conferences with operators, Mr. Stringer continued; market conditions are considered but not "distress conditions." No orders are placed on the basis of promised traffic but the witness conceded that the practice of spreading orders among all operators stimulates commercial coal traffic for the Western Maryland. It also developed that the Western Maryland has an agreement with the Reading under which the former waives per diem on its cars used for shipments of Reading locomotive fuel originating on the W. M.

Pennsylvania

In opening the presentation of the Pennsylvania, including also that of the Long Island, G. Orcutt, assistant general solicitor, introduced an exhibit embracing a transcript of the testimony offered by C. D. Young, assistant vice-president and general purchasing agent, in I. C. C. 22,455, Reciprocity in Purchasing and Routing. Mr. Young, the only Pennsylvania witness to appear, identified the transcript and said that Pennsylvania fuel buying policies had not changed since the reciprocity case testimony was given; his further testimony was therefore but a brief outline of these policies.

The Pennsylvania, Mr. Young said, buys about 80 per cent of its fuel coal on continuing orders—mutual understandings that orders shall continue as long as prices and service are satisfactory. The remaining 20 per cent is purchased on a spot basis to fill out needs. Sellers, whether they be operators or sales agencies, must specify the mine from which the coal is to be shipped. The Pennsylvania, unlike many other roads, has interpreted "authorized" sales agent to mean "exclusive" sales agent. Orders are allocated on the basis of the amount of commercial traffic received from mines but no set yardstick has been evolved; commercial shipments of sales agencies are not considered as they are by some other roads. This road, Mr. Young explained, does not definitely fix prices although it endeavors to pay a "fair" price even though it has offers at lower prices. The witness in this connection agreed that foreign roads generally are paying less than the P. R. R. for coal originating on the latter.

When it developed that the Pennsylvania buys coal from the Pittsburgh Coal Company under Clayton Act

bidding, Attorney List asked Mr. Young whether or not it would make any difference if all coal were so purchased. The witness thought that the objections to purchasing all fuel under Clayton Act bidding "are very serious, particularly to the coal industry." Such a requirement, he said, would bring bids from mines which would only go into production if they got the contract sought. On the part of the railroad the cost of inspection would be materially increased, Mr. Young added.

Reading

The Reading, A. T. Owen, superintendent of transportation, testified, uses a mixture of bituminous and anthracite when the latter is available; otherwise straight bituminous is used. All anthracite mines on the Reading have been approved as producers of locomotive fuel and anthracite is purchased on monthly shipping orders. Both spot and contract purchases of bituminous are made; prices are based on the lowest figure at which acceptable coal is obtainable. Other Reading witnesses testified as to accounting and inspection of fuel after Examiner C. W. Berry had objected to the introduction of such testimony through Mr. Owen.

Lehigh & Hudson River and Ulster & Delaware

It is the policy of the Lehigh & Hudson River to purchase 25 to 40 per cent of its fuel supply from originating points which will give the Baltimore & Ohio a line haul; such coal comes from the Monongahela as well as the B. & O. itself and additional purchases are made from mines on the Pennsylvania. Questioned as to the policy of favoring the B. & O., A. M. Holmes, purchasing agent, said that his practice in this regard was in accordance with instructions received from the L. & H. R. management. This road is now buying fuel on a spot basis although one contract remains in force. Orders are allocated among commercial coal shippers though not strictly on a reciprocity basis; the maximum premium Mr. Holmes would pay for traffic reasons is five or ten cents a ton, he told Attorney List.

Testimony on behalf of the Ulster & Delaware was brief since this road has now become a part of the New York Central. It had for several years purchased fuel from the same company on annual contracts but the contract for the current year was terminated when the New York Central took over the road.

Lehigh & New England

The Lehigh & New England was the first road to appear thus far which includes detailed specifications in its inquiries for fuel; its practice in this regard interested Examiner Berry. These specifications embrace B.t.u.'s, ash content, fusing point of ash, sulphur content, moisture content, etc. The L. & N. E. witness—J. R. Bennington, purchasing agent—testified that both bituminous and anthracite are used; the latter is purchased under Clayton Act bidding from the Lehigh Navigation Coal Company, the only producer local to the L. & N. E. This road, Mr. Bennington continued, has no reciprocity standard but if quality and price are equal, consideration is given shippers of commercial coal. As to the specifications the witness said that no difficulty is experienced in obtaining coal to meet them; the minimum ash content (eight per cent) is considered most important, he added.

Following the Pittsburgh sessions, which were scheduled to run from February 23 to 26, hearings will be held at Detroit, Mich., February 29 to March 4, and at Chicago from March 7 to 21.

Whenever material listed on these cards or on the standard stock book is returned for reasons unknown to the storekeeper and the demand has lessened considerably or stopped altogether, the storekeeper fills out a special form describing the material and showing the quantity on hand, the value in the accounts, and the final value after the scrap value and carrying charges are deducted; also the scrap value, the purchase reference, the date received, and other information sufficient

[illegible]

Form Used by Southern Pacific for Reporting and Disposing of
Inactive Stock

to facilitate its disposal. These forms are sent by district storekeepers to a general storekeeper, where they are accumulated and forwarded to the general superintendent of motive power, the engineer maintenance of way or other proper officer responsible for the material, for recommendations as to the disposition that can be made of this material.

In addition to preparing this form, similar information is reported on cards which are sent to all affiliated properties, which have separate supply organizations, and steps are not taken to dispose of any material by scrapping or by sale until it has been determined that such affiliated properties can not use the material. When these companies consider it possible to use the material, the forms are retained by them for ready reference. All forms returned to the stores department by the maintenance of way, maintenance of equipment and other departments, with their respective recommendations, are summarized, and then compiled in a summary report which is forwarded to the general manager for final approval or disapproval of the plans of disposal recommended in each case. The Southern Pacific contends that it is only by thorough and constant checking and reporting, and following up such material with those responsible for its use that its effective disposition can be accomplished.

Proposed Changes in Consolidation Law

(Continued from page 356)

as distinguished from consolidations, and even the latter are of doubtful practicability.

"It seemed desirable to provide in paragraph (4) for possible approval by the commission of a method of putting two or more railroads together through the medium of a single holding corporation. I question whether adequate occasion for such a method could be shown except in rare instances, but it is conceivable that this could be shown. In such an event, the condition designated (c) provides that the holding company shall be subject to the supervision of the commission with respect to accounts and capitalization, just as if it were a carrier.

"Having authorized in paragraph (4) every method of combining railway properties that may conceivably be desirable in the public interest, the new paragraph (5) contains a general prohibition against every other means of bringing two or more railroad companies under common control or management in a common interest, 'however such result is attained, whether directly or indirectly, by use of common directors, officers, or stockholders, a holding or investment company or companies, a voting trust or trusts, or in any other manner whatsoever.' It is realized that the enforcement of this prohibition may be very difficult. The commission might find it a prodigious and perhaps impossible task, particularly since it is not armed with authority to search the books and records of individuals, partnerships, associations, and non-carrier corporations, to obtain the proof necessary to establish a violation. However, the proposed paragraph (5) would be a clear declaration of legislative policy to be violated at peril. I believe that it would operate as an effective deterrent, especially since the proposed paragraph (4) authorizes, or can be made to authorize, every method of combining railway properties that the public interest may conceivably demand."

Motor Transport Section

Train-Connection Motor Coaches Prove Worth

Baltimore & Ohio bus service from Jersey City to Manhattan Island and Brooklyn has been successful

WHEN the Baltimore & Ohio, five and one-half years ago, established motor coach service from its Jersey City passenger terminal to off-line stations in New York and Brooklyn, it set up a system of co-ordinated train and motor coach service which attracted wide attention as a unique experiment. Today the B. & O.'s train-connection motor coach service at New York is still unique in many respects, but it is no longer in an experimental stage. It has proved to be a traffic-producing asset. While statistics concerning the patronage of B. & O. trains into and out of Jersey City are not available, it is known that from the start of operation in 1926, the traffic showed continuous increases until the heavy slump during 1931, which adversely affected travel on all railways. That the management of the B. & O. considers the service beneficial is indicated by the fact that it has been so substantially extended.

Finding itself without passenger terminal facilities in New York, the Baltimore & Ohio, in 1926, conceived the idea of using motor coaches to connect its terminal on the New Jersey side of the Hudson river with strategic and convenient points in Manhattan and Brooklyn. In

many respects a radical departure from ordinary railroad practice, the experiment was watched with no little anxiety by officers of the railroad. However, they left nothing undone to make the connecting service pleasant, comfortable and efficient, and on August 29, 1926, the motor coaches ran for the first time.

Manhattan and Brooklyn Stations Established

In the beginning, two stations on Manhattan Island were established, one located in the Pershing Square building at Forty-second street and Park avenue and the other in the old Waldorf-Astoria Hotel at Fifth avenue and Thirty-Third street. Following convenient routes, motor coaches connected these stations with every train of the Baltimore & Ohio at Jersey City. Train-connection service was established simultaneously at Elizabeth, N. J., to take care of passengers into and out of Newark. The motor coaches in New York were operated by the Fifth Avenue Coach Company and those between Elizabeth and Newark by the Public Service Corporation of New Jersey, although the coaches themselves were the property of the railway. These arrangements are still in effect.



Loading Passengers at Train-Side in Jersey City



Passengers Disembarking from a Train-Connection Coach at the Forty-Second Street Station

The initial routes having proved their value, the service was promptly expanded, and extending the train-connection service to Brooklyn was the next development. On November 23, 1926, a station was provided on the ground floor of the Central building on Joralemon street. Motor coach service to all trains at Jersey City is also offered from this station.

Early in 1928 arrangements were concluded whereby the Baltimore & Ohio secured a substantial amount of space on the first floor of the Chanin building at Forty-Second street and Lexington avenue in New York. On December 17 of that year, a new station was opened at this point and the old station in the Pershing Square building was abandoned. One of the chief features of the facilities in the Chanin building is the fact that the motor coaches discharge and load their passengers within the building instead of on the street. A special double driveway, half for incoming coaches and the other half for outgoing coaches, was constructed, and a turntable, electrically operated, was installed to provide means for turning the coaches. This arrangement proved to be efficient and satisfactory from the start. As the motor coaches enter the building on the Forty-First street side, they discharge their passengers, move a few feet ahead to the turntable and are promptly turned around, after which they are run off the turntable to take their places in the outgoing driveway, alongside the waiting room door. This station occupies a highly strategic position, being across the street from the Grand Central terminal, thus providing a ready point of interchange with New York Central and New Haven trains to and from the New England states and northern New York.

Columbus Circle Area Tapped

The increasing volume of traffic handled during 1927 and 1928 and the development of the Columbus Circle and Eighth avenue districts of New York justified still further expansion, and on August 26, 1929, a third station on Manhattan Island was opened. This one is located in the American Circle building in Columbus Circle at Central Park West, and is served by motor coaches operating on Eighth avenue. Like the other stations, this one includes a ticket office and comfortably-appointed waiting rooms. When the old Waldorf-Astoria Hotel was razed, the motor coach station on Thirty-Third street was moved a short distance to the west.

Passengers on the train-connection buses need not

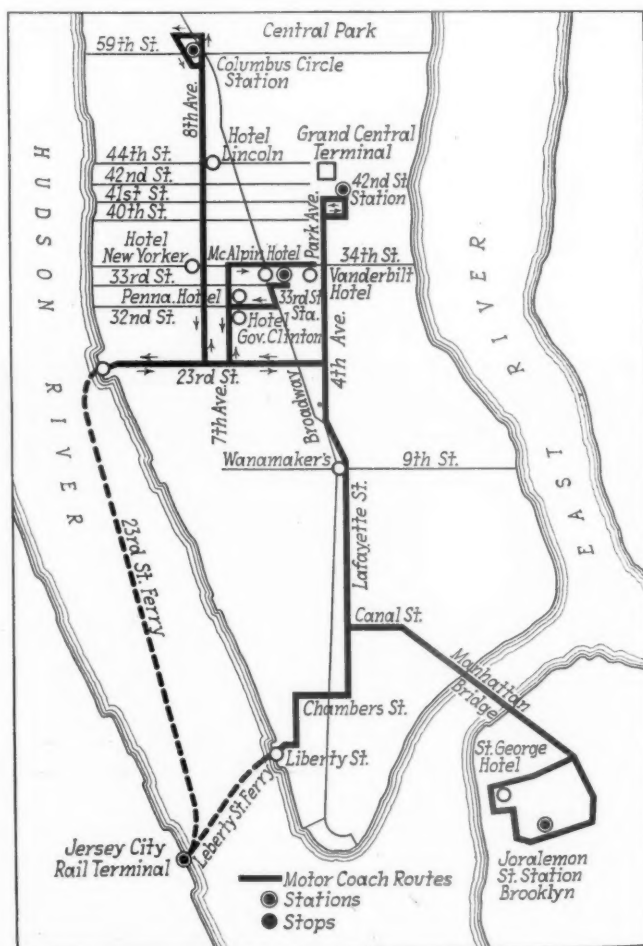
board or leave them only at the specified stations from the three stations on Manhattan Island and from the one in Brooklyn, the motor coaches traverse routes which take them to the doors of many of the principal hotels. This is a most advantageous characteristic of the operations. Regular stops are made along all routes to pick up or let off passengers in front of such hotels as the Vanderbilt, the McAlpin, the Pennsylvania, the Governor Clinton, the New Yorker and the Lincoln in New York; and the St. George and the Leverich Towers in Brooklyn. The Forty-Second street station in the Chanin building is directly opposite the Commodore Hotel, with subway connections between the station and the hotel lobby.

Transfer between the piers at the Jersey City terminal and the piers on Manhattan Island is accomplished by the Baltimore & Ohio ferry service, which runs from Jersey City to Liberty street and to Twenty-Third street.

Strategic Value

The various extensions of its motor coach runs have established Baltimore & Ohio transportation facilities in virtually all areas on Manhattan Island and in Brooklyn where passenger traffic originates in substantial amounts. Through the operation of its off-line stations and the train-connection coach service, the B. & O. has entrenched itself at Columbus Circle, at Forty-Second street, at Thirty-Third street, in lower Manhattan, and in the center of Brooklyn. Convenient on account of its accessibility at many points and attractive because of the character of service rendered, the train-connection motor

(Continued on page 373)



B. & O. Train-Connection Motor Coach Routes in New York and Brooklyn



Semi-Trailers Spotted for Unloading and Loading

Seven Years of Trucking

Improved service, economy and increasing traffic have resulted from
Boston & Maine's highway freight operations

By F. J. Carey

Manager, Trucking Operations, Boston & Maine Transportation Company

THICKLY settled and essentially an industrial section, New England presents complex transportation problems. Industrial communities are not only close together, but many of them are within easy reach of seaports, and a substantial portion of New England is now within overnight trucking distance of the greatest market of the world, New York.

The l.c.l. traffic of New England railroads constitutes a larger percentage of their total freight traffic than the average for the railroads of the country. On one representative New England railroad, l.c.l. traffic comprises 8 per cent of all freight traffic and contributes 15 per cent of the freight revenue. New England has had good roads for many years, and more and better roads are being built constantly. Weight restrictions on trucks have progressed upward as roads have been improved. Moreover, no New England state except Vermont exercises any regulation over intrastate common carrier trucking.

It is only natural then that the motor truck operating in competition with the railroads should have found New England a fertile field, because of the proximity of industrial cities, the character of the traffic, the good roads, and the absence of state regulatory laws. These conditions also favored the use of trucks by New England railroads to replace or to supplement local freight service.

To review briefly the history of the Boston & Maine Transportation Company as regards trucking, the company was organized in 1925 and started its first truck

route in June of that year. That route was a venture in commercial trucking in competition with existing operators between Boston, Mass., on the one hand and Lowell and Lawrence on the other. The latter cities, predominantly textile manufacturing centers, are each 25 miles from Boston and 10 miles from each other.

In 1926 the Boston & Maine Transportation Company undertook the performance of the transfer of freight from the Boston & Maine freight terminals in Boston to a number of connecting lines, including several steamship lines. This transfer up to that time had been performed by independent forwarders.

The first truck route handling l.c.l. freight from station to station on a branch line was started in 1927. This was a train-saving project, which, although it did not effect a complete substitution, nevertheless permitted a curtailment in train service which was worth while. Almost simultaneously, trucking service for l.c.l. freight was begun between Boston and practically all stations within a radius of 15 miles. Several factors entered into the establishment of this truck concentration at Boston, the chief results of which were the following: The speeding up of service, principally of outbound freight from industrial shippers in the metropolitan area; the saving of car space in the newly-consolidated Boston freight terminal; a reduction in terminal switching; and a reduction in local freight train hours.

Additional truck routes, to replace local freight train service in whole or in part, were added from time to time. Some were discontinued as conditions changed,

until at the present time 725 route miles are operated in the trucking of Boston & Maine railroad freight. There are truck routes in Massachusetts, New Hampshire, Maine and Vermont. Furthermore, 296 route miles are operated over which Boston & Maine Transportation Company freight is carried exclusively.

Operate from Concentration Points

Practically all operations on which Boston & Maine railroad freight is carried are based on concentration points, the most important of which are Boston, Lawrence and Holyoke. Boston, the largest city on the Boston & Maine, is also the base of the greatest trucking activity of the Boston & Maine Transportation Company. In regular service at Boston are 18 trucks, 15 tractors and 53 semi-trailers. This equipment is engaged in transfer to and in one case from connecting lines; in ferry car service by truck to and from industries in the suburban area; and in hauling freight in both directions between Boston and 27 stations within a 15-mile radius of Boston.

The unloading of inbound freight at the Boston houses is begun at 2 a.m. five days a week and at midnight Sunday night. Empty trucks and semi-trailers are set at the inbound houses at the close of each day's work, and freight is trucked directly from the cars to the various pieces of highway equipment which are designated for the important points reached by truck. Thus freight handling cost is kept at a minimum. Most of the equipment is loaded for one destination only, but where the volume is not sufficient for this, trucks are loaded for several stations. Freight for these trucks is placed on the freight house floor when unloaded, to be reloaded on the trucks in station order later in the morning.

Semi-trailers ordinarily are loaded for the following stations: Chelsea, Everett, Malden, Cambridge, Watertown and Waltham, and also for connecting lines—the New York, New Haven & Hartford, the Eastern Steamship Lines, and the Ocean Steamship Company. Except at the Ocean Steamship Company, semi-trailers are set for unloading, the tractor being available for other service while the unloading is being performed. L.c.l. freight is transferred from as well as to the New Haven in Boston & Maine Transportation Company semi-trailers, although to a minor extent. New England Transportation Company equipment is also used in the movement from the New Haven to the Boston & Maine, particularly in connection with freight which the New England Transportation Company hauls into Boston with its equipment from points on the New Haven.

The usual service between Boston and the stations in the suburban area to which semi-trailers are operated is two trips daily, with extras when necessary. The first trip is scheduled to arrive at the suburban stations by 9 a.m., with freight which has arrived in Boston and been unloaded during that morning. The second or last trip leaves the stations at 3 p.m. with outbound freight received up to that time, and the freight is forwarded from Boston the same night.

"Ferry-Truck" Service

Where freight for more than one station in the Boston district is loaded on one piece of equipment, a truck usually is used rather than a semi-trailer. Both trucks and semi-trailers are used in ferry-truck service to 20 industries in the Boston district. In this service, rendered under the provisions of the Boston & Maine "Ferry Car Tariff," the highway equipment is substituted for box cars. This tariff gives the industry the opportunity to have 4,000 lb. or more of miscellaneous

l.c.l. shipments transported by car, or by highway equipment at the option of the railroad, to the nearest freight station or transfer without charge, and also under certain conditions to have 4,000 lb. or more of inbound l.c.l. freight transported from the freight station or transfer to the industry without charge. The transportation company keeps three semi-trailers set at the shipping room of one industrial establishment in the Boston district. Outbound shipping from this factory varies from 2 to 10 semi-trailers daily.

At Lawrence is located the largest transfer in the eastern territory of the Boston & Maine, except for Boston, and the second largest trucking concentration of the Boston & Maine Transportation Company is based on Lawrence. The types of service there are similar to those at Boston, except that no transfer to or from connecting lines is involved. No semi-trailers are employed in the Lawrence operation; only trucks are used. Boston & Maine railroad freight is handled on six truck routes centering at Lawrence, and ferry truck service is furnished to 14 industries within a four-mile radius. Normally, from 8 to 10 trucks are used in the Lawrence operation.

Next in importance is the Holyoke-Springfield concentration. These cities in central Massachusetts are 8 miles apart. From Holyoke, 3 stations and 16 industries are served; from Springfield, 3 stations and 6 industries. Both Holyoke and Springfield receive and forward a number of through merchandise cars. Consequently, considerable freight is trucked between the two stations. Outbound freight originating at the smaller stations in this district is trucked to whichever of the two larger stations has available the better outbound merchandise car service. Six trucks ordinarily are used in this district.

Smaller truck concentration points at which railroad freight is handled, are located at Salem, Mass., one truck; Dover, N. H., two trucks; Biddeford, Me., two trucks; Rochester, N. H., one truck; Lowell, Mass., four trucks; Manchester, N. H., three trucks; Goffstown, N. H., one truck; Lakeport, N. H., one truck; White River Junction, Vt., two trucks, part-time; Claremont Junction, N. H., one truck, part-time; Keene, N. H., two trucks; Fitchburg, Mass., two trucks; Gardner, Mass., one truck; Greenfield, Mass., one full-time and one part-time truck; and North Adams, Mass., one truck.

Method of Operation

The operation at each concentration point is essentially the same. Trucks leave the concentration point in the morning with freight unloaded from cars which have arrived during the previous night, and return in the afternoon with freight which has originated at stations on the truck routes and which is forwarded in cars the same evening. One daily truck trip is made on the longer routes on which the volume of traffic is relatively light; two or more trips are made on the shorter routes where the traffic volume is greater. Means are afforded for handling overflows with extra trucks. Local agents anticipate shipping as far as possible and call for extra equipment as early as it becomes evident that the capacity of the regular equipment is likely to be exceeded.

In two cases, highway service has completely supplanted railroad service. The first is at Belmont, N. H., located at the end of a five-mile branch. In 1930, several trestles on the Belmont branch were due for renewal at a cost of about \$50,000. It was decided to postpone the renewal and to experiment with the substitution of highway service for a period of six months, with the approval of the townspeople of Belmont. In

August, 1930, rail service was discontinued, and since then express and all freight, carload and l.c.l. has been trucked between Belmont and Lakeport, seven miles distant by highway. Belmont is maintained as an open station on a part-time basis; the agent at Lakeport rides on the truck and keeps the station at Belmont open for two hours each week day. After 16 months the highway service is still satisfactory.

The second complete substitution was made in June, 1931, on the New Boston branch, also a five-mile branch in New Hampshire. The station at New Boston has been kept open with a full-time agent. L.c.l. freight, express and mail are trucked to and from Manchester, 15 miles distant. Carload freight is trucked to and from Goffstown, seven miles from New Boston.

Generally, trucks have been substituted for rail service by the Boston & Maine for reasons of economy. Savings have been accomplished in this way: Train miles and overtime have been reduced, local freight runs extended, transfers closed, and terminal switching and car per diem reduced. In some cases, however, truck service has been inaugurated primarily to expedite traffic rather than for reasons of economy. This is particularly true in connection with traffic which is competitive with independent trucks. While it is easy to overdo this sort of thing, by spending more to expedite the traffic than the revenue which the traffic produces, an endeavor has been made by the Boston & Maine to preserve a sound relation between revenue and expense.

Volume of Traffic

Traffic handled by the Boston & Maine Transportation Company for the account of the Boston & Maine in September, 1931, the heaviest month of the year, amounted to 21,528 tons. This was divided as follows:

Boston, Suburban District	4,976 tons
Boston, Transfer to Connections	2,592 tons
Boston, Interyard Transfer and Industrial Ferry Truck....	1,853 tons
Lawrence and Lowell to Boston	97 tons
Between Lawrence and Lowell	761 tons
Biddeford District	794 tons
Claremont Junction District	191 tons
Concord District	384 tons
Dover and Rochester District	1,062 tons
Fitchburg District	383 tons
Gardner District	275 tons
Greenfield District	396 tons
Holyoke and Springfield District	1,892 tons
Keene District	595 tons

Lakeport and Belmont District	332 tons
Lawrence District	2,736 tons
Lowell District	1,096 tons
Manchester District	533 tons
North Adams District	118 tons
Salem District	357 tons
White River Junction District	105 tons

In September, 1930, 23,336 tons were handled by truck for the account of the railroad. This tonnage is not strictly comparable with the 21,528 reported above for September, 1931, because of changes in routes and territory covered.

In September, 1930, 3,270 tons of merchandise were handled by the Boston & Maine Transportation Company for its own account; in September, 1931, 5,492 tons were handled. The increase in this account of more than 60 per cent draws attention to one of the most interesting phases of the present activities of the transportation company. Starting with the Boston-Lowell-Lawrence route in 1925, 60 route miles, the transportation company now is operating 296 route miles for its own account. Of the increase, 86 route miles were added in 1930, and 140 in 1931.

Numerous means have been utilized by the Boston & Maine to keep local traffic on the rails. Freight express cars operated intrastate in Massachusetts by independent express companies under contract with the railroad have been the principal method. For a time this was adequate, but competition in rates and service from purely highway operators has forced most of the express car operators themselves to the highway. A roll-off container operation between intrastate points 45 and 100 miles apart, respectively, was unsuccessful largely because of its management. An express company operated interstate between Boston and three points, 40, 55, and 75 miles distant, respectively. The Interstate Commerce Commission in 1929 cancelled the tariff under which this company operated, just as plans had been made to put similar operations in effect at other points.

Several unsuccessful attempts have been made since then to put into effect, between interstate points on the Boston & Maine, a tariff which would permit of competition with truck operators. The distances over which this competition is most acute do not exceed 115 miles, except in one instance. It is the thought of the Boston



Pick-Up and Delivery Trucks at Station in Boston

& Maine officials that the box car should be used in this service if at all possible, rather than any specialized equipment such as truck bodies, containers, or trailers and flat cars.

"Omnibus" rates not lower than fifth class applying on carloads of mixed freight have been suggested as a solution, but in Boston & Maine territory this will not suffice. Trucks are hauling traffic in truckloads at the fifth and sixth class carload rates. An "omnibus" rate not lower than fifth class would not be low enough to attract this traffic, because the cost of pick-up, delivery, and overhead would have to be added to the "omnibus" rate.

Commercial Trucking Activities

The difficulty of keeping certain traffic to the rails for distances up to 100 miles by any sort of a rate has been recognized, and the policy has been adopted by the Boston & Maine of having the transportation company engage in commercial trucking over distances up to 100 miles in cases where it appeared that operations could be developed which ultimately would be profitable. In a few cases operations were started for defensive reasons at the outset, with the expectation that a profitable traffic could be built up.

Of the latter nature were the operations which the transportation company commenced in July, 1931, in connection with the Eastern Steamship Lines. Because of improvement in service on the all-rail route between Boston & Maine points and New York, the Boston & Maine—Eastern Steamship route was at a disadvantage in service. To protect their interests, the Eastern Steamship Lines arranged to establish through rates with truck lines radiating from Boston into Boston & Maine territory.

Inasmuch as considerable tonnage would move in this service and would strengthen certain truck lines operating in Boston & Maine territory, the Boston & Maine Transportation Company requested that the Eastern Steamship Lines make whatever through truck and water rates were necessary with the Boston & Maine Transportation Company rather than with independent truck lines. This the Eastern Steamship Lines arranged to do.

Previous to this time, the Boston & Maine Transportation Company had through truck and water rates with the Eastern Steamship Lines between New York and 25 Boston & Maine points within a 30-mile radius of Boston. The stations added in July, 1931, brought the number of Boston & Maine Transportation Company points up to more than 100 and increased the radius of operation to nearly 90 miles from Boston.

Through rate arrangements were entered into with the Merchants and Miners Transportation Company in November, 1931, on Philadelphia and Baltimore traffic to and from the same group of stations that were covered by the Eastern Steamship Lines arrangement. This traffic also is trucked to and from Boston. Tariffs providing for this service are filed by the steamship companies with the United States Shipping Board.

The steamship traffic carried by the transportation company is not balanced as to direction. Therefore, it has been necessary for the transportation company to develop traffic of its own in the light direction on each route. In 1930, a service for the transportation company account was started between Boston and Keene, N. H., a distance of 86 miles. The greater part of the traffic between Boston and Keene moved on the railroad at that time, and it was partially for the purpose of preventing the independent trucks from making further inroads on the rail traffic that the transportation

company operation was established. From this point of view, this route has been successful. An overnight service in each direction is given daily except Sunday, with intermediate stops at four points at the Keene end of the route.

With respect to the routes started in 1931, principally for the Eastern Steamship Lines traffic, return loads are being obtained slowly, but the situation appears to indicate that these routes soon will be on a profitable basis.

Equipment and Organization

The transportation company owns no trucking equipment, but contracts with independent trucking concerns for trucks, tractors, and semi-trailers. These concerns have contracts or agreements with the transportation company, and with all of them, 11 in number, the transportation company's business either constitutes the major portion of their activities or takes precedence over any other business they may perform. Two trucking concerns furnish 80 per cent of the equipment used by the transportation company; with each of them the transportation company is by far the largest account. Trucking equipment is used interchangeably on both railroad freight and transportation company freight. On the same truck may be freight of both types. The truck may stop at the freight station in a town to load and unload railroad freight and then may go to a store or a mill in the town to pick up or deliver transportation company freight. The greatest possible utilization of equipment is thus accomplished.

In the matter of personnel, the trucking department has a payroll of more than 40. This includes the manager of trucking operations, in general charge of all trucking department activities and reporting to the president of the transportation company, who is also an officer of the Boston & Maine. There is an assistant to the manager and a general freight agent. The latter has charge of rates and solicitation and has under him two traveling freight agents. Operations are in charge of a supervisor of trucking in the Boston district and four inspectors in other districts. Reporting to the supervisor at Boston are the truck dispatcher and his assistant, 5 foremen, 15 freight handlers and truck helpers, and 4 clerks. Two of the inspectors have clerks in their charge, and there are 4 clerks in the manager's office.

While the solicitation activities of the transportation company are devoted principally to transportation company traffic, nevertheless the soliciting force works closely with the traffic department of the railroad with respect to railroad traffic lost or in danger of being lost to the highway, as well as with respect to potential railroad traffic. Both departments exchange traffic tips. Three of the four inspectors are located in territories where the transportation company handles business for its own account. These inspectors, while primarily operating men, are charged with routine solicitation activities in their respective territories. One traveling freight agent looks after operating matters in part of his territory. The general freight agent, one traveling freight agent, two inspectors and six clerks are former employees of the Boston & Maine. The truck dispatcher and one inspector are former truck drivers.

Close contact is maintained between the transportation company and the operating department of the railroad in order that the trucking of railroad freight may be co-ordinated with rail operations to the highest degree. The transportation company advises with the traffic department of the railroad, both in respect to service to shippers and receivers of freight and also in

respect to requests from shippers for rail rate reductions because of truck competition.

Although traffic in general moved in less volume in 1931 than in 1930, and may not increase greatly this year, the transportation company by reason of the new routes opened in 1930 and 1931 has a fertile field ahead of it in 1932 in soliciting traffic from competitors. For general freight other than railroad freight, the Boston & Maine Transportation Company is becoming an important influence in a large portion of the territory served by the Boston & Maine.

Train-Connection Motor Coaches Prove Worth

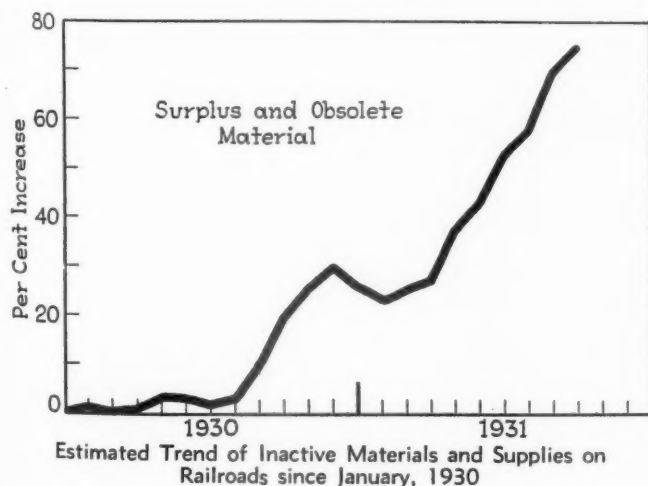
(Continued from page 368)

coach service has been an important factor in helping the B. & O. to retain and increase its traffic to and from New York in spite of the handicap of a lack of train service to Manhattan Island itself.

Not the least attractive feature of the service are the provisions for checking hand baggage. Outbound passengers are not encumbered with their hand baggage after they reach the motor coach station. At these points the baggage is checked, and it is delivered to the passengers on board their trains. Similarly, the hand baggage of inbound passengers is checked on board incoming trains and is delivered to them when they alight from their motor coach.

The train-connection motor coach service has established an excellent record for dependability. Train connections at Jersey City, of course, are guaranteed, but since August, 1926, there have been only three occasions when trains were delayed for more than five minutes by reason of the failure of motor coaches to reach Jersey City on time. This record can be fully appreciated only when it is understood that the schedules call for 89 motor coach runs per day, or 32,485 runs per year, with a minimum of one coach to each run, to connect with the 20 daily inbound and outbound trains at Jersey City. The operations are so organized that extra coaches are readily available to protect each schedule run. Furthermore, a rule is in effect which provides that, in the event that anything happens to a motor coach while it is going to or from Jersey City, the driver has authority to commandeer a sufficient number of taxicabs to carry all passengers and their baggage to their train.

* * *



New Books...

Power And The Public, edited by Ernest Minor Patterson. 190 pages, 9 in. by 5 7/8 in. Bound in cloth or paper. Published by the American Academy of Political and Social Science, Philadelphia, Pa. Price \$2.50 (cloth bound) or \$2 (paper bound).

This is Part I to Volume 159 of the Annals of the American Academy of Political and Social Science; it includes the papers presented at a special conference held in November and called "because of the conviction of the officers of the Academy that a number of the problems presented by the relations between public utilities and the general public are among the most urgent now facing us for solution." While most of the papers relate to public utilities, there is included the discussion entitled "A plan for Public Ownership and Operation," by Interstate Commerce Commissioner Joseph B. Eastman. An abstract of these remarks of Mr. Eastman was published in the *Railway Age* of November 14 and editorial comment on them followed in the issue of November 21.

Transporting the A. E. F. in Western Europe, by William J. Wilgus. 612 pages, 9 1/2 in. by 6 1/4 in. Illustrated. Bound in cloth. Published by Columbia University Press, New York. Price \$12.50.

Colonel Wilgus' experience in France with our World War transportation problems makes him a witness peculiarly well-qualified to offer expert testimony on this most important phase of modern warfare. He was in intimate contact with the work of moving troops and supplies from the time United States entered the war until after the signing of the armistice, serving first as a member of the Military Railway Commission to France and England, then as director of military railways and finally as deputy director general of transportation under General W. W. Atterbury. This book is a comprehensive appraisal of the manner in which the United States army met this transport problem. Criticisms are frequently interspersed but they are always constructive, each being followed by a definite suggestion whereby the things criticized might be avoided in the future.

The book commences with an account of the preliminary investigations of the military railway commission and proceeds through descriptions of the work entailed in supplying and transporting the combatant army to concluding chapters which consider post-armistice transport problems, French opinions on American army transportation methods and critical comment. This latter, as well as other criticisms throughout the volume, dwells upon lack of balance between the responsibility placed upon the transportation service and the authority vested in it. Col. Wilgus in this connection lists eight different changes in the transportation service which were effected within sixteen months and adds that, "it was not until hostilities were over that the transportation service emerged as it had started at the time of its first re-organization, with its head clothed with power, as well as responsibility, in the movement of our troops and supplies by rail and water, including the construction of port and railway facilities needed in that connection." Because he believes that one of the prime difficulties with which the transportation service had to deal was its own faulty organization, which latter had to be ruthlessly torn apart and put together in the face of the enemy, the author includes in an appendix a suggested peace-time military transportation organization which could speedily be adapted to the demands of war.

That some such readily adaptable organization is needed will be conceded by the reader as he learns that, at the time of the armistice, the transportation service had "but 61 per cent of its needs in personnel, 73 per cent in locomotives, 32 per cent in cars, less than 50 per cent in floating equipment, and a small percentage in siding and yard extensions, locomotive water supply, and other elements essential for an army of the size then in France"; and that "a crisis in transportation, thanks in the main to the faulty staff organization and an unbalanced fleet of ocean carriers over which the transportation service had no control, was rapidly coming to a head when the enemy laid down his arms."

Odds and Ends . . .

They Need Him in Wall Street

A wild bull delayed a passenger train near Stamford, Ont., the other day, when it successfully debated the right of way with the train. It finally decided to withdraw and was shot soon afterwards.

Speaking of Heavier Loading

A motor truck stopped by a state motorcycle officer at Dolton, Ill., early one morning was found to weigh, including its load of structural steel, a total of 57,000 lb. The load consisted of two bridge girders, each weighing 20,000 lb.

Back to the Land

Proof that the present unemployment situation is resulting in a return to the farm by many people now living in cities is available in the number of inquiries for farm locations received by railways during 1931. For example, the annual report of C. B. Michelson, colonization agent of the St. Louis-San Francisco, showed a total of 3,610 such inquiries.

A Monument of Coal

The population center of the United States in 1930 is marked by a shaft of coal erected by the Binkley Coal Company on leased coal property near Linton, Ind. The spot was located by Professor W. A. Coggsall, head of the Indiana State University College of Astronomy. The property on which the shaft is located is served by the Chicago, Milwaukee, St. Paul & Pacific.

Who Built the First Steam Engine?

We are indebted to A. C. Mack of the travel department of The Literary Digest for authoritative information on the question, raised in the issue of January 30, concerning the identity of the man who built the first steam engine. Mr. Mack submits a page from the latest issue of the Standard Dictionary, which credits Thomas Savery with building the first commercially successful steam engine, in 1698. However, all that had been done before was rendered obsolete when James Watt secured his first patents in 1769, in which he laid down principles still useful in the development of the steam engine.

Fast Work

The Railway Gazette (London) reports a recent example of fast work in King's Cross station in London. From the moment that an inbound suburban train arrived at the platform, to the time of re-starting with a substantial load of passengers, only 70 seconds elapsed. In this time, the inbound engine was uncoupled, the tail lamps were placed on the last car for the outbound journey, the tail lamps were removed from the other end of the eight-car train, and a new engine was moved from an adjoining track, backed up to the train, and coupled to it. We agree that this was fast work on the part of the employees, but we think that a word of praise should also go to the passengers, who undoubtedly set a record of their own for stepping lively.

Record-Breaking Excursions

All excursion traffic records on the Gulf, Mobile & Northern were broken recently on the occasion of the visit of "Old Ironsides" to Mobile, Ala. In one day four trains brought more than 3,300 passengers into Mobile. On the third day of the expedition, two more trains with 18 coaches, carrying 1,150 more passengers, came to town. The crowd took the railroad by surprise. Train No. 1 from

Jackson, Miss., had been expected to carry only 400 or 500 passengers but as the train proceeded down the line, the original estimate of 400 grew to 800 and then to 1,000. The train was full at Pontotoc, crowded at Houston and bulging at Ackerman. Only by adding every available coach and running the train in four sections, did the G. M. & N. get the excursionists to Mobile.

More Evidence of Increasing Passenger Traffic

Reminiscent of the good old days when railroad trains were crowded with passengers, was an incident on the Illinois Central recently when a freight train operating on the Evansville division carried 34 hoboes in one car on a trip through Morganfield, Ky.

Swelling the Conscience Fund

The following letter was recently received by T. J. McRoberts, general passenger agent of the Wheeling & Lake Erie:

"Enclosed is post office money order in the amount of \$1 made payable to you. Back in the summer of 1909, while residing at Hartville, Ohio, with my good parents, I stole a ride on the evening Wheeling & Lake Erie passenger train from Congress Lake to Hartville. Myself and two chums boarded the train while it was taking water at the lake. We rode on the bumpers between the engine and the first car of the train. When the train was slowing down at Hartville station, we jumped off and beat it up town. We should have been apprehended and brought to justice. If this one dollar is sufficient to settle my account with you for the stolen ride, will you kindly accept it and please forgive me for the offense committed?"

Bellmore Station Gets a Coat of Paint

Through the courtesy of an unidentified reader in the general accounting department of the Railway Express Agency at New York, we learn that the Long Island station at Bellmore, L. I., referred to on the "Odds & Ends" page of the February 13 issue, is now glistening in a new coat of paint. Twenty members of the Exchange Club of Bellmore, after unsuccessful efforts to get the railroad to paint the station, took matters into their own hands, put on their old clothes and did the job in one day. The railroad exhibited some hesitancy to rely on the discretion of the Bellmorites and stipulated that the station be painted brown and red. The club members were not particularly satisfied about this but they finally agreed. Led by their president, they started to work early in the morning and by evening had finished the interior and had given the exterior one coat of paint.

"Interesting, If True"

The trouble with most good stories is that they are not so. In the issue of February 6, we told about the New Haven station agent at New Lenox, Mass., who not only held the jobs of postmaster, station agent, baggagemaster, ticket agent, express agent, and storekeeper, but who also owned the station itself and threatened to make the New Haven furnish a new station when advised that he was going to be replaced. It now appears that the situation is not quite as represented. According to Leslie H. Tyler, special representative of the public relations department of the New Haven, Mr. Hutchinson, the agent referred to, left the service of the New Haven in 1925. His employment from 1921 until he left the service was in the capacity of a caretaker. Mr. Tyler concludes, not without justice, "I think that you will agree with me that the item about Hutchinson may be put in that famous classification of 'interesting if true'."

NEWS

Sir Joseph Flavelle for Private Ownership

Public control a war relic—nothing paid to capital, Canadian inquirer points out

"In all the period between 1918 and 1931, putting debits and credits together, we (referring to the Canadian National Railways) have never earned enough money to pay coal, oil and wages. We've never paid one cent to capital," declared Sir Joseph Flavelle, member of the Royal Commission on transportation, last week when the Commission sat in Ottawa. Sir Joseph was commenting on the evidence of A. R. Mosher, spokesman for the Canadian Brotherhood of Railway Employees, following the latter's submission. A general discussion on the merits and demerits of public ownership was precipitated in which Mr. Mosher strongly defended government-controlled railways.

"Ownership on the present huge scale by the public was a war relic," Sir Joseph asserted. In 1915 Canada was confronted with immense responsibilities in the discharge of her war obligations. No money could be borrowed in New York or England, and the government was faced with heavy burdens relating to the railways. Instead of turning the roads over to a receiver, the government took them in charge, thus reversing the procedure of the United States.

Sir Joseph said that the government of Canada had to absorb the 20 per cent freight charge on westbound traffic originating in the maritime region. This 20 per cent had to be paid out to the C. P. R. in order that that company might not charge it up to the customers. Apparently for the purpose of political considerations governments did that kind of thing, commented Sir Joseph. As far as the Intercolonial Railways was concerned, it had carried all its passengers and freight, and never paid its way.

The commission also heard R. J. Tallon, Canadian leader of the railway unions and vice-president of the Trades and Labor Congress of Canada. Railwaymen believed it to be in the best interests of this country that some form of competition should prevail between the two great transportation systems, he said. He appreciated there were differences of opinion on that point: some suggestions had been put forward of amalgamation, but he was voicing the opinions of his fellow-workers when he said that what was aimed at in amalgamation could quite well be brought about by railway managements in their present form.

Mr. Tallon recommended the appoint-

ment of a national transportation board which would have powers to enquire into all matters affecting the railways and adjudicate thereon.

Dealing with testimony put in by bus and truck interests, L. F. Loree, member of the commission and president of the Delaware & Hudson, did not agree that motor coach competition had come to stay. If bus line companies, he said, had to keep books on the same system as railway companies not one could be shown as making money. What he feared was that both transportation systems might go to the wall and the people finally be left without any means of travel.

Political interference in the affairs of the Canadian National had operated adversely in the conduct of that system, Mr. Tallon contended. It should be removed from the political arena and placed under the jurisdiction of the national transportation board. Efficiency could not be produced where the management was subjected to the importunities of members of Parliament. He urged a reconstruction of the finances of the national system.

Tie Producers' Meeting

The National Association of Railroad Tie Producers will hold its fourteenth annual convention at the Peabody Hotel, Memphis, Tenn., on May 17-18.

Complaint Against U. P. Dismissed

At the request of the complainant the Interstate Commerce Commission has dismissed the complaint filed by the Pickwick Greyhound Lines against the Union Pacific about a year ago, objecting to the purchase by the Union Pacific of stock of the Interstate Transit Lines as being in violation of provisions of the interstate commerce act.

Freight Traffic in 1931

Freight traffic transported in 1931 by the railroads totaled 340,148,081,000, net ton-miles, according to complete reports for the year compiled by the Bureau of Railway Economics. This was a reduction of 81,984,610,000 net ton-miles or 19.4 per cent under the total for 1930, and a reduction of 152,165,341,000 net ton-miles, or 30.9 per cent, under 1929. In the Eastern district, there was a reduction of 18.5 per cent compared with 1930; in the Southern district 19.4 per cent and in the Western district 20.6 per cent.

In December, the total was 22,662,901,000 net ton-miles, a reduction of 6,371,196,000 net ton-miles or 21.9 per cent below the same month in 1930. In the Eastern district, the December total was 19.4 per cent under that of the same month the year before, in the Southern district 24 per cent, and in the Western district 24.7 per cent.

Four-System Plan Hearings Continued

Differing viewpoints of New England interests are heard
by Porter

Hearings before Chairman Porter of the Interstate Commerce Commission on the application of the principal eastern roads for approval of the four-system consolidation plan have been continued since February 17 and have been devoted mainly to the testimony of local interests opposed to some features of the plan. Governors Ely, of Massachusetts, and Winant, of New Hampshire, appeared on February 18. They made no objection to the four-system plan as such but asserted that it would be fatal to the interests of New England to approve the plan and leave the Pennsylvania and the Pennroad Corporation in control of the New Haven and the Boston & Maine. On the other hand Governor Case, of Rhode Island, not only supported the four-system plan but also advocated "trunk line penetration" of New England by which each of the trunk lines should obtain control of a connection into New England. Asked if he would favor the four-system plan without provision for such an arrangement, he said he would because it would be a step toward it. The other New England governors also opposed allocation of the "bridge lines" at this time to the trunk lines, asking that they be reserved for allocation in connection with the final disposition of the New England lines.

Henry D. Sharpe, of the Browne & Sharpe Manufacturing Company, Providence, R. I., also advocated the four-system plan but asked that New England be not excluded from it. He said that the New York Central and the Boston & Albany had always given New England good service and he welcomed the increasing interest of the Pennsylvania in New England and the improved service worked out by that company and the New Haven.

Percy R. Todd, president of the Bangor & Aroostook, called as a witness for the New England governors' committee, said he had never been enthusiastic on the consolidation policy and that he was opposed to control of any New England line by any trunk line, although he said the New York Central's lease of the Boston & Albany was "water over the dam" and differed from the acquisition of a more extensive New England system with more ramifications than the straight line of the B. & A. He said the only way a trunk line could obtain a return from an investment in a New England line would be to

Operating Statistics of Large Steam Railways—Selected Items for the Month of December, 1931,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross Excluding locomotives and tenders	Net Revenue and non-revenue	Service-able	Un-serv-iceable	Per cent un-serv-iceable	Stored	
New England Region:													
Boston & Albany.....	1931	402	136,187	142,510	8,983	3,285	65.2	173,685	57,243	74	60	44.9	18
	1930	407	148,536	154,634	11,729	3,741	65.1	201,970	71,054	86	42	33.1	29
Boston & Maine.....	1931	2,063	283,994	319,724	29,873	8,763	66.1	471,716	169,393	163	127	43.7	28
	1930	2,066	327,771	367,664	34,215	10,193	66.1	557,870	206,140	259	41	13.7	76
N. Y., New H. & Hart.....	1931	2,065	366,187	432,848	22,869	11,073	63.4	600,877	216,503	235	106	31.1	13
	1930	2,094	402,764	465,179	24,289	12,501	61.7	714,432	269,467	264	87	24.8	36
Great Lakes Region:													
Delaware & Hudson.....	1931	848	232,618	299,544	31,416	6,971	57.6	453,357	201,448	251	24	8.7	141
	1930	876	279,302	367,150	36,871	8,432	59.3	548,594	253,274	240	32	11.7	109
Del., Lack. & Western.....	1931	998	343,683	374,797	42,315	10,424	65.9	598,090	236,690	214	60	21.9	43
	1930	998	407,345	447,001	49,921	12,335	63.7	733,148	295,674	223	58	20.8	32
Erie (inc. Chi. & Erie).....	1931	2,316	606,450	632,949	47,720	24,298	60.1	1,487,543	547,927	374	118	23.9	128
	1930	2,316	720,477	752,841	59,389	29,155	59.7	1,834,797	716,982	383	90	19.1	115
Grand Trunk Western.....	1931	1,019	202,134	203,705	1,459	4,816	60.0	288,470	98,709	103	46	30.9	35
	1930	1,019	229,516	232,395	3,553	5,957	60.4	353,245	123,873	113	40	26.1	37
Lehigh Valley	1931	1,343	384,920	402,831	33,017	10,701	62.3	655,604	264,123	219	117	34.8	38
	1930	1,343	437,789	466,581	46,476	12,527	60.3	796,358	328,906	237	108	31.3	22
Michigan Central	1931	2,115	365,115	366,133	7,074	10,610	59.7	624,877	208,448	145	79	35.2	54
	1930	1,869	404,728	409,127	11,378	12,264	59.2	727,902	253,101	153	63	29.1	44
New York Central.....	1931	6,158	1,460,840	1,575,984	86,982	51,329	60.6	3,163,582	1,267,514	741	637	46.2	199
	1930	6,468	1,724,235	1,871,193	123,787	59,514	58.6	3,823,942	1,575,684	946	377	28.5	321
New York, Chi. & St. L.....	1931	1,660	433,598	440,627	1,379	12,901	59.1	761,396	258,158	173	76	30.6	65
	1930	1,660	530,677	539,689	8,008	15,514	57.5	944,471	328,255	185	71	27.7	38
Pere Marquette	1931	2,200	296,665	303,303	2,643	6,972	58.7	438,521	163,424	143	32	18.2	43
	1930	2,201	318,164	321,943	2,081	6,902	57.1	451,282	176,625	171	17	9.1	59
Pitts. & Lake Erie.....	1931	235	55,387	56,451	412	2,257	57.4	184,800	101,529	56	25	30.8	33
	1930	232	88,318	90,076	917	3,096	55.7	259,148	140,954	56	17	23.4	20
Wabash	1931	2,497	512,173	526,034	8,375	14,584	61.7	836,447	270,803	249	120	32.5	62
	1930	2,497	665,397	691,244	12,628	17,608	59.0	1,077,482	369,742	297	108	26.7	50
Central Eastern Region:													
Baltimore & Ohio.....	1931	5,521	1,160,684	1,298,571	139,484	32,323	58.4	2,191,332	932,786	827	321	28.0	263
	1930	5,536	1,417,250	1,639,180	193,194	39,916	57.6	2,791,510	1,226,162	933	252	21.3	279
Big Four Lines.....	1931	2,792	593,355	612,488	16,076	16,564	60.1	1,100,653	505,263	269	187	41.1	47
	1930	2,712	669,481	695,328	23,919	19,094	58.9	1,304,246	605,402	296	133	31.0	42
Central of New Jersey.....	1931	692	166,686	179,698	25,338	4,687	54.9	329,870	148,756	124	54	30.3	48
	1930	692	207,316	222,880	31,246	5,757	55.2	407,547	188,403	152	36	19.1	33
Chicago & Eastern Ill.....	1931	939	176,031	176,167	2,607	3,685	59.0	250,543	107,953	90	68	43.1	42
	1930	946	194,948	196,192	2,417	4,421	59.2	296,561	128,523	90	60	39.9	32
Elgin, Joliet & Eastern.....	1931	447	81,015	82,835	1,943	1,760	55.4	144,520	69,756	86	5	5.5	28
	1930	447	111,779	115,891	4,706	2,641	57.4	218,372	110,581	74	20	21.0	10
Long Island	1931	400	38,055	39,353	13,092	362	51.3	28,377	10,430	45	7	12.7	7
	1930	400	41,712	44,647	11,128	482	51.8	36,453	13,748	37	6	14.0	7
Pennsylvania System.....	1931	10,628	2,660,400	3,001,155	297,590	85,394	60.2	5,718,178	2,461,503	2,233	314	12.3	972
	1930	10,675	3,183,383	3,575,093	357,299	99,863	58.9	6,862,282	2,980,384	2,275	308	11.9	760
Reading	1931	1,451	452,983	486,430	46,144	11,461	56.4	854,222	400,596	320	92	22.2	87
	1930	1,447	566,761	612,543	53,175	14,390	56.4	1,084,367	524,669	309	70	18.5	34
Pocahontas Region:													
Chesapeake & Ohio.....	1931	3,106	775,178	810,625	25,870	27,908	55.1	2,350,098	1,252,900	585	118	16.8	276
	1930	3,116	1,024,213	1,082,357	41,394	33,432	53.2	2,861,975	1,515,537	606	110	15.3	188
Norfolk & Western.....	1931	2,258	551,212	582,133	25,254	18,259	58.9	1,497,037	781,847	453	30	6.3	195
	1930	2,226	680,168	735,360	35,484	21,670	57.1	1,838,074	952,758	467	33	6.6	168
Southern Region:													
Atlantic Coast Line.....	1931	5,144	600,245	601,175	8,564	11,730	58.5	639,424	199,188	398	91	18.6	104
	1930	5,161	690,694	696,520	10,065	14,290	58.2	805,883	267,742	394	74	15.9	87
Central of Georgia.....	1931	1,900	197,458	198,170	3,589	4,029	65.5	221,064	79,729	100	48	32.2	3
	1930	1,900	217,608	218,442	3,450	4,614	65.1	262,176	100,370	115	33	22.3	7
Ill. Cent. (inc. Y. & M. V.)	1931	6,670	1,318,372	1,326,975	22,068	29,794	58.3	2,048,631	801,830	749	170	18.5	42
	1930	6,683	1,581,971	1,598,144	27,977	36,598	57.4	2,556,917	1,035,633	719	168	18.9	54
Louisville & Nashville.....	1931	5,262	940,339	991,919	26,024	18,557	57.8	1,293,950	594,232	506	199	28.2	171
	1930	5,271	1,255,026	1,330,725	38,050	24,828	56.8	1,783,707	834,001	557	165	22.9	133
Seaboard Air Line.....	1931	4,457	487,952	496,725	6,007	11,117	60.4	658,583	213,358	242	43	15.1	46
	1930	4,466	526,228	535,145	6,689	12,207	58.7	752,084	258,714	275	24	8.0	17
Southern	1931	6,675	1,069,801	1,081,415	17,801	22,783	63.0	1,266,893	464,518	789	177	18.3	232
	1930	6,676	1,230,718	1,245,518	22,664	26,251	61.7	1,533,119	589,417	811	183	18.4	212
Northwestern Region:													
Chi. & North Western.....	1931	8,443	949,774	989,792	20,199	21,486	59.7	1,294,998	430,025	670	140	17.3	232
	1930	8,459	1,069,577	1,110,204	28,157	25,576	62.4	1,531,037	587,895	735	122	14.2	201
Chi. Gt. Western.....	1931	1,459	207,502	207,571	13,808	6,385	58.2	395,759	135,099	71	45	39.1	4
	1930	1,459	240,434	256,807	20,000	7,404	60.3	450,047	168,089	100	12	11.0	10
Chi., Milw., St. P. & Pac.	1931	11,265	1,179,865	1,238,412	58,672	28,127	58.4	1,789,865	684,623	764	152	16.6	368
	1930	11,304	1,343,704	1,418,363	74,795	33,953	59.9	2,165,177	874,312	800	144	15.3	300
Chi., St. P., Minn. & Om.	1931	1,714	221,514	239,373	10,519	4,064	63.2	241,873	96,147	147	26	15.0	74
	1930	1,714	256,936	279,075	12,886	5,104	61.6	308,186	126,012	152	27	15.2	52
Great Northern	1931	8,311	562,204	567,154	17,555	15,210	67.6	883,063	377,427	478	133	21.8	143
	1930	8,342	649,434	658,165	24,652	20,041	71.3	1,152,393	531,941	489	125	20.3	132
Minn., St. P. & S. St. M.....	1931	4,325	339,339	342,527	2,611	6,344	63.2	351,252	133,576	142	60	29.7	30
	1930	4,356	365,325	371,679	3,114	8,097	67.6	441,779	185,803	166			

Compared with December, 1930, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding locomotives and tenders	Gross ton-miles per train-mile, ex-cluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per loco-motive-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1931	4,131	2,908	7,039	19.3	20,470	1,275	420	17.4	262	23.1	4,596	175	36.5
1930	3,967	3,098	7,065	8.0	19,437	1,360	478	19.0	324	26.2	5,630	167	41.9
Boston & Maine.....1931	11,086	6,918	18,004	11.8	22,080	1,661	596	19.3	304	23.7	2,649	119	38.9
1930	11,576	7,978	19,554	8.0	21,820	1,702	629	20.2	340	25.4	3,219	122	43.2
N. Y., New H. & Hart.....1931	19,891	11,139	31,030	15.3	22,997	1,641	591	19.6	225	18.2	3,382	119	43.1
1930	19,235	12,440	31,675	14.4	23,569	1,774	669	21.6	274	20.6	4,150	119	45.0
Great Lakes Region:													
Delaware & Hudson.....1931	11,344	2,903	14,247	3.4	25,064	1,949	866	28.9	456	27.4	7,661	128	38.8
1930	10,013	3,868	13,881	3.7	25,268	1,964	907	30.0	589	33.1	9,330	132	48.0
Del., Lack. & Western.....1931	19,658	3,717	23,375	7.7	23,917	1,740	689	22.7	327	21.8	7,649	156	49.2
1930	19,550	4,638	24,188	5.1	23,598	1,800	726	24.0	394	25.8	9,556	159	57.0
Erie (inc. Chi. & Erie).....1931	36,409	10,504	46,913	3.8	36,509	2,453	903	22.6	377	27.8	7,632	114	44.6
1930	38,755	12,136	50,891	2.9	36,470	2,547	995	24.6	454	31.0	9,987	116	55.3
Grand Trunk Western.....1931	4,903	8,096	12,999	9.2	24,817	1,427	488	20.5	245	19.9	3,117	110	44.6
1930	4,604	10,444	15,048	7.8	24,635	1,539	540	20.8	266	21.1	3,921	113	49.9
Lehigh Valley .....1931	22,680	4,916	27,596	10.3	27,763	1,703	686	24.7	309	20.1	6,344	157	41.8
1930	21,254	6,334	27,588	8.4	26,497	1,819	751	26.3	385	24.3	7,901	161	48.0
Michigan Central .....1931	26,554	15,838	42,392	6.7	31,493	1,711	571	19.6	159	13.5	3,179	121	53.9
1930	26,090	15,339	41,429	5.1	31,966	1,798	625	20.6	197	16.1	4,368	119	62.9
New York Central.....1931	81,460	64,685	146,145	14.5	32,825	2,166	868	24.7	280	18.7	6,640	109	38.9
1930	82,773	58,845	141,618	7.6	32,018	2,218	914	26.5	359	23.1	7,859	114	48.6
New York, Chi. & St. L.....1931	16,332	5,685	22,017	11.8	28,985	1,756	595	20.0	378	32.0	5,016	110	57.4
1930	16,530	7,615	24,145	5.7	27,879	1,780	619	21.2	439	36.1	6,378	113	69.0
Pere Marquette .....1931	12,962	4,214	17,176	3.7	23,796	1,478	551	23.4	307	22.3	2,396	100	56.3
1930	13,088	4,255	17,343	3.3	22,516	1,418	555	25.6	329	22.5	2,588	106	55.5
Pitts. & Lake Erie.....1931	19,920	6,235	26,155	16.8	40,288	3,337	1,833	45.0	125	4.9	13,943	103	22.6
1930	20,386	4,267	24,653	5.1	36,884	2,934	1,596	45.5	184	7.3	19,598	121	40.5
Wabash .....1931	19,459	7,185	26,644	5.3	30,921	1,633	529	18.6	328	28.6	3,499	120	46.8
1930	21,364	8,762	30,126	5.1	29,905	1,619	556	21.0	396	32.0	4,777	127	56.1
Central Eastern Region:													
Baltimore & Ohio.....1931	82,292	13,682	95,974	6.0	24,680	1,888	804	28.9	314	18.6	5,450	155	40.4
1930	83,659	18,200	101,859	5.8	24,015	1,970	865	30.7	388	21.9	7,145	164	49.9
Big Four Lines.....1931	24,610	17,174	41,784	9.9	30,424	1,855	852	30.5	390	21.3	5,839	115	44.5
1930	24,894	21,190	46,084	4.6	30,634	1,948	904	31.7	424	22.7	7,202	116	54.0
Central of New Jersey.....1931	17,972	6,356	24,328	12.9	26,381	1,979	892	31.7	197	11.3	6,932	146	37.2
1930	18,325	7,449	25,774	7.0	24,820	1,966	909	32.7	236	13.0	8,779	150	43.7
Chicago & Eastern Ill.....1931	6,055	2,068	8,123	13.3	25,644	1,423	613	29.3	429	24.8	3,709	137	36.5
1930	10,782	2,524	13,306	40.8	25,581	1,521	659	29.1	312	18.1	4,381	139	42.7
Elgin, Joliet & Eastern.....1931	9,570	3,802	13,372	2.4	15,985	1,784	861	39.6	168	7.7	5,033	129	30.1
1930	9,655	4,945	14,600	4.3	16,233	1,954	989	41.9	244	10.2	7,979	132	41.4
Long Island .....1931	785	4,371	5,156	9	6,076	746	274	28.8	65	4.4	841	371	33.2
1930	734	4,651	5,385	1.2	6,636	874	330	28.6	82	5.6	1,108	336	41.8
Pennsylvania System.....1931	248,100	45,769	293,869	6.3	29,773	2,149	925	28.8	270	15.6	7,471	139	41.8
1930	238,900	53,840	292,740	5.1	28,643	2,156	936	29.8	328	18.7	9,006	140	49.1
Reading .....1931	38,693	8,601	47,294	4.9	22,957	1,886	884	35.0	273	13.8	8,908	153	41.7
1930	35,664	9,787	45,451	3.3	22,133	1,913	926	36.5	372	18.1	11,694	158	56.6
Pocahontas Region:													
Chesapeake & Ohio.....1931	49,442	5,830	55,272	2.3	41,068	3,032	1,616	44.9	731	29.6	13,013	88	38.4
1930	49,072	7,774	56,846	1.8	37,144	2,794	1,480	45.3	860	35.6	15,687	101	50.6
Norfolk & Western.....1931	41,773	4,033	45,806	8	39,703	2,716	1,418	42.8	551	21.8	11,170	123	40.5
1930	39,831	5,463	45,294	9	39,077	2,702	1,401	44.0	679	27.0	13,804	135	49.8
Southern Region:													
Atlantic Coast Line.....1931	28,914	6,657	35,571	6.1	18,607	1,065	332	17.0	181	18.2	1,249	118	40.3
1930	28,107	7,989	36,096	4.5	19,337	1,167	388	18.7	239	21.9	1,674	121	48.7
Central of Georgia.....1931	8,273	1,696	9,969	20.0	19,375	1,120	404	19.8	258	19.9	1,354	136	44.0
1930	7,724	2,298	10,022	12.7	18,830	1,205	461	21.8	323	22.8	1,704	146	48.4
Ill. Cent. (inc. Y. & M. V.).....1931	53,720	11,593	65,313	12.4	24,734	1,554	608	26.9	396	25.2	3,878	143	47.3
1930	51,876	15,131	67,007	7.0	24,164	1,616	655	28.3	499	30.7	4,999	151	59.2
Louisville & Nashville.....1931	53,353	5,754	59,107	15.7	20,779	1,376	632	32.0	324	17.5	3,643	158	46.6
1930	51,660	9,210	60,870	11.4	20,364	1,421	665	33.6	442	23.2	5,104	154	61.1
Seaboard Air Line.....1931	15,654	5,136	20,790	3.9	20,967	1,350	437	19.2	331	28.6	1,544	128	57.0
1930	17,361	6,617	23,978	3.9	20,395	1,429	492	21.2	348	28.0	1,869	136	58.5
Southern .....1931	57,868	9,190	67,058	14.0	19,277	1,184	434	20.4	223	17.4	2,245	161	36.7
1930	55,681	11,568	67,249	12.9	19,134	1,246	479	22.5	283	20.4	2,848	169	41.1
Northwestern Region:													
Chi. & North Western.....1931	45,810	17,606	63,416	7.0	20,037	1,363	453	20.0	219	18.3	1,640	148	40.2
1930	54,333	20,797	75,130	8.4	19,869	1,431	550	23.0	252	17.6	2,242	147	42.8
Chi. Gt. Western.....1931	5,130	3,685	8,815	9.3	31,550	1,907	651	21.2	494	40.1	2,987	137	61.5
1930	4,716	3,555	8,271	10.0	28,500	1,872	699	22.7	656	47.9	3,716	142	79.9
Chi., Milw., St. P. & Pac.....1931	64,878	11,987	76,865	2.3	23,101	1,517	580	24.3	287	20.2	1,960	133	45.7
1930	63,474	14,209	77,683	1.9	22,905	1,611	651	25.8	363	23.5	2,495	132	51.0
Chi., St. P., Minn. & Om.....1931	2,366	8,003	10,369	9.4	16,612	1,092	434	23.7	299	20.0	1,810	135	46.6
1930	2,850	8,998	11,848	6.9	16,837	1,199	490	24.7	343	22.5	2,372	130	52.7
Great Northern .....1931	45,028	8,570	53,598	6.4	22,728	1,571	671	24.8	227	13.5	1,465	153	30.9
1930	43,727	8,730	52,457	4.5	24,035	1,774	819	26.5	327	17.3	2,057	140	35.9
Minn., St. P. & S. St. M.....1931	20,812	2,676	23,488	3.5	16,139	1,035	394	21.1	183	13.8	996	127	55.1
1930	20,520	2,892	23,412	3.4	17,304	1,209	509	22.9	256	16.5	1,376	118	52.8
Northern Pacific .....1931	42,501	4,582	47,083	9.6	22,863	1,540	635	24.0	228	14.3	1,680	165	36.2
1930	42,401	5,675											

"corral" westbound traffic that would otherwise be divided among other roads.

Gerrit Fort, chairman of the Maritime Association of the Boston Chamber of Commerce, testifying on behalf of 18 New England commercial organizations, not only expressed approval of the four-system plan, but also advocated trunk line penetration of New England. He said the plan would create four well-articulated and reasonably balanced systems, capable of rendering efficient service, and that it is important for the interests of New England that it be approved as promptly as possible. It would tend to strengthen the confidence of the investors in these systems and enable them to go forward with plans for improvements. He said that the inherently high cost of railroad operation in New England represents a handicap on New England commerce which can be mitigated only by integration with strong systems outside of New England. George L. Crooker, of the Rhode Island foreign and domestic commerce commission, took a similar position, and expressed the belief that a majority of New England business men favor some sort of trunk line service for New England; but the Pennsylvania ought to be required to give up its interest in the Boston & Maine with a view to its allocation to the Chesapeake & Ohio. W. W. McCoubrey, for the city of Boston and the Boston Port Authority, said the commission should withhold approval of the four-system plan until thorough consideration has been given to the New England situation.

Opposition to the four-system plan was voiced on February 23 by Winslow S. Pierce, chairman of the board of the Wabash, who said that no dismemberment and no absorption of the Wabash system is admissible either under the terms of

the transportation act or independently as an economic proposition. The Wabash opposes any modification of the commission's plan except in so far as that plan allocates under System No. 7 to association with the Wabash certain lines which have neither sought union with the Wabash nor been sought by the Wabash in its original application. These are the Norfolk & Western and the Seaboard Air Line, together with certain supplementary lines also allocated to System No. 7. As to these, he said the Wabash disclaims interest and is prepared to acquiesce in any reallocation upon which the commission may determine. However, the Wabash holds the conviction, Mr. Pierce testified, that the terms of the law so limit the discretion of the commission as effectively to preclude the absorption of the Wabash by the Pennsylvania, of the Western Maryland by the Baltimore & Ohio, or the Wheeling & Lake Erie or Lehigh Valley by the Van Sweringen lines. If the commission adheres to its orders directing the divestment of the stocks acquired by these lines, he said, the position of the Wabash as regards the completion of its proposed system "will not be inferior to that of any other company which has asked approval of its ambitions."

Frederick H. Fay, consulting civil engineer, appearing on behalf of the city of Boston and the Boston Port Authority, said he was not opposed to the four-system plan as such but he opposed the allocation of the lines outside of New England without giving New England and her ports "a voice in the shaping of her destiny"; and he objected to the allocation of the "bridge" lines to lines west of the Hudson river, particularly the New York, Ontario & Western, which he said is of importance to New England

because it serves the port of Oswego, N. Y.

Security Owners Seek Waterways Data

"What does the American public think of the various inland waterways of the United States and their further development by the federal government for transportation purposes? Should the Federal Barge Lines, owned and operated by the government on the Mississippi and Warrior rivers, now revert to private hands?"

The answer to these and similar questions is sought by the national Security Owners Association in a questionnaire which the organization has sent to 12,000 civic groups, chambers of commerce, newspaper editors and prominent citizens in all sections of the country.

The purpose, as set forth in the letter accompanying the questionnaire, is to determine "as fairly and accurately as possible, the attitude of the public on the vital questions raised by waterway transportation, and to learn the views of the sound element in every section of the United States."

The Security Owners Association declares that a major project of the organization for 1932 is "to attempt some workable and constructive solution of the problems presented by the participation of the government in waterway transportation and the development of a network of waterways in competition with the established network of railroads."

C. P. R. Clerks Agree to Pay Reduction

After three hearings before a board of conciliation, headed by Chief Justice Greenshields, the Canadian Pacific,

Dole-Minded Thinking

The term "dole" means something given without the recipient giving anything in return. In conception and practice it rests on the idea of "let the government do it".

Much of our crooked thinking for doles has been stimulated by selfish business men who, by concentrated group action, are trying to get doles for their own business in the form of having governmental agencies furnish service without the beneficiaries of the service paying for it. The following are typical illustrations of dole thinking:

Panama Canal service has always been below cost. The dole from the tax payers to date amounts to 226 million dollars. Since foreign ships make up 51 per cent of the traffic, this is likewise a dole to foreign shippers.

The Monongahela River waterway program rests on a dole of 31 million dollars. Local industries get the

benefit of this government dole resulting in increased profits of manufacturers without a decrease in the cost of living expenses.

It costs the tax payers of New York State a dole of, in round numbers, \$5 per ton for every ton of freight moved through the New York State Barge Canal.

The Inland Waterways Corporation, owned by the United States Government, has a dole of 60 per cent of its service on the Mississippi River direct from tax payers.

The St. Lawrence Waterway program rests on tolls free service and this means a dole from tax payers. If tolls were levied to do away with the dole, there would be no saving in freight.

For all the rural highways in the United States in 1930 the gasoline tax and motor vehicle fees amounted to 862 million dollars contributed by the users, of the total cost of 2,247

million dollars. So that 1,385 million dollars came as a dole from the tax payers.

Since 1920 the dole from the tax payers to the post office has been 730 million dollars.

It is impossible to get the exact figures of the many millions of dollars that have been lost by the Federal Farm Board's grain and cotton stabilization activities, which loss is a dole to banks, speculators and farmers.

The proposed program for U. S. Government operation of the power plant at Muscle Shoals rests on a dole of 2.6 million dollars annually to a small group of favored power users.

—From a Pamphlet, "Fundamentals of Today's Depression Problem," by Samuel S. Wyer, published by, and available without charge from, the Fuel-Power-Transportation Educational Foundation, Beggs Bldg., Columbus, Ohio.



INTENSIFIED POWER PRODUCTION

... Cuts Locomotive Maintenance

- Locomotive maintenance has been shown to be proportional to the number of cylinders and drivers.
- So when the Lima-built 2-10-4 type locomotives of the Chesapeake and Ohio Railway replaced Mallets, a substantial maintenance saving was accomplished, as well as an improvement in operation.
- The 2-10-4's have only two cylinders and five pairs of driving wheels to be maintained as compared with four cylinders and eight pairs of driving wheels on the Mallets.



LIMA LOCOMOTIVE WORKS
INCORPORATED

LIMA - - - - - OHIO

which had proposed, and its clerks, freight handlers and station employees, who opposed, a 10 per cent decrease in wages, announced to the chairman at the opening of the fourth session last week in Montreal that they had reached an agreement by direct negotiation.

The agreement provides, in substance, for the 10 per cent reduction requested by the railway, but makes it effective from March 1, 1932, for the period of one year, instead of from December 1, 1931, as requested by the company in its submission to the board. This result eliminates the retroactive clause.

N.P. Asks A.T.C. Relief

The Northern Pacific has asked the Interstate Commerce Commission to be relieved of requirements of maintenance and operation of automatic train control between Mandan, N. D., and Glendive, Mont.

Western Grain Rates Restored

Freight tariffs restoring the rates on grain and grain products as they were on July 31, 1931, before the effective date of the Interstate Commerce Commission's general revision, became effective on February 20 under the commission's permission to make them effective on ten days' notice. The commission's order was enjoined by order of the Supreme Court of the United States.

Annual Dinner of Chicago Traffic Club

The Traffic Club of Chicago will hold its twenty-fifth annual dinner on March 3, when the club will pay tribute to the railroad presidents of the United States. Presidents of 125 railroads have been invited as guests for the occasion, at which James Hamilton Lewis, United States senator, and Merle Thorpe, editor of Nation's Business, will be the speakers.

Missouri Pacific Offers New Bus Service

The Missouri Pacific Transportation Company, highway subsidiary of the Missouri Pacific, has established a new through motor coach service between Dallas, Tex., Shreveport, La., and Texarkana, Ark. The new schedules provide convenient connections with the through highway services available between St. Louis, Mo., Memphis, Tenn., Little Rock, Ark. and Houston, Tex.

Police Protection on the Lackawanna

Pointing out that, although it exercises more than ordinary care for the safety of its own property and of that of shippers entrusted to it, it is a heavy taxpayer, and, like other taxpayers, feels that it has a right to adequate police protection, a press release recently prepared by the Delaware, Lackawanna & Western for use in cities and towns along its lines directs attention to the fact that the railroad finds it necessary to employ a force of 168 police officers to provide such protection.

This force, the release points out, reduced to 44 the number of Lackawanna

A Hopeful Sign

A new spirit of earnest, aggressive service is appearing in railroad managements. It is becoming easier to get a decision as to a matter in controversy. Suggestions are asked even when there are none to offer. One of our greatest systems has instilled new and vigorous life in its traffic department, with no revolution in personnel. New handling methods are being tried, faster schedules observed, and the things which were impossible five years ago are being done. If this process continues, the losses from consolidations, such as reduced competition and the increasing aloofness of management naturally coming with larger organizations, will be more than offset. If it continues, it will not only go far toward returning the railroads to health, but it will be the most important single force toward the return of general prosperity.

—Frank H. Baer, Transportation Commissioner, Cleveland (Ohio) Chamber of Commerce, in February Issue of "The Cleveland." "

freight and ticket offices broken into and pilfered during 1931, as compared with a much large number entered in the previous year. In the majority of these cases the loss was insignificant, theft often consisting of rifling telephone coin boxes. Nevertheless, a large number of the guilty parties were apprehended and convicted by the railroad's own police.

Senator Brookhart Proposes Government Railroad Pension Board

Senator Brookhart, of Iowa, has introduced in the Senate a bill, S.3677, to provide for the establishment of a system of pensions for railroad employees to be administered by a Railroad Pension Board appointed by the President. The funds would be provided by assessments of a percentage of the gross earnings of each railroad company and the same percentage of the employees' compensation, the percentage to be determined by the board.

Foreign Railway Representatives Launch Travel Campaign

The fifth anniversary meeting of the Conference of European Railway Representatives, held recently at New York, marked the inauguration of an aggressive campaign to promote foreign travel through the co-operative efforts of the railway representatives, the representatives of trans-Atlantic steamship lines and the consuls general in New York of the countries whose railways are represented in the conference.

Each of the foregoing groups, the announcement of the campaign says, "pledged its wholehearted co-operation in the work toward the common goal, the promotion of international travel as a

means to combat economic disturbances such as the present one and to promote the good will and understanding among nations * * * that travel in foreign lands alone can bring about." The conference membership includes 13 travel promotion representatives of railways in Austria, Denmark, France, Germany, Great Britain, Italy, The Netherlands, Norway, Sweden and Switzerland.

Spend Part of Loans in Chicago

Resolutions adopted by the city council of Chicago, addressed to the Reconstruction Finance Corporation, demand that a fair portion of any money lent to the railroads be spent in Chicago and central states, since a part of the corporation's money comes from these sections of the country. Copies of the resolution were also sent to President Hoover, to officers of the Pennsylvania and to Governor Emerson, who is requested to make a similar demand for expenditures in the Illinois area.

Hourly Basis of Wages in Effect on D. & H.

The Delaware & Hudson placed into effect an hourly schedule of wages with guaranteed minimum earnings for engineers on February 1 and for conductors on February 15. A similar basis for firemen and trainmen is contemplated at a later date. The brotherhoods affected are opposing the plan and the board of mediation sent one of its mediators to Albany, N. Y., on February 18 in the effort to bring the parties together but so far without success.

R. C. C. Makes Loans

The directors of the Railroad Credit Corporation met in New York on February 24 and approved applications for loans which had been submitted to it. The corporation is not yet in funds but has made arrangements whereby the Reconstruction Finance Corporation will supply the necessary cash until such time as the Credit Corporation begins receiving its advances from the railroads. It was authoritatively announced that there would be no defaults in interest payments due March 1 by roads not in receivership.

A Complete Solution for the Railroad Problem

Representative John M. Nelson, of Wisconsin, who has been reading Commissioner Eastman's testimony on Section 15a before the House committee on interstate and foreign commerce, and on whose request the commission's estimates of railroad recapture liability were recently made public, has what he calls the final solution of the railroad recapture problem. He has introduced a bill, H.R. 9551, to amend Section 15a to require the Interstate Commerce Commission to publish tentative valuations for all the railroads four months after the close of each calendar year so that the railroads can "immediately" pay into the United States Treasury the \$361,000,000 which the Interstate Commerce Commission has "roughly" estimated (largely on the



THE BLACK DIAMOND PULLS-IN ON-TIME

Hauled by a Booster-Equipped Locomotive

The Lehigh Valley Railroad crosses hilly country between Allentown and Wilkes-Barre, Pa. One stretch of track rises 1,117 feet in fifteen miles. Smooth starts and good road speeds are obtained in through passenger service by using locomotives equipped with Locomotive Boosters.

"The Black Diamond", "The Toronto", "Lehigh Limited", "The New Yorker" and "The Star" are all handled by Booster-equipped locomotives. They haul their loads up the stiff grades and around the curves and also stop on the grades, starting again without taking slack.

The Booster performs a valuable service wherever it is used. It adds the power of another pair of drivers, yet this power can be turned off or on as the demands rise or fall. Smooth starts, rapid acceleration to road speeds and on-time runs result. The passenger's good will is won—economical operation is obtained.

FRANKLIN RAILWAY SUPPLY CO., Inc.

NEW YORK

CHICAGO

MONTREAL

O'Fallon basis condemned by the Supreme Court) represents half the amount which about half of the railroads may have earned in excess of 6 per cent in one or more years since 1920. This, he says, in an explanatory statement, would establish a railroad contingent fund adequate in times of depression, such as the present, to meet all requirements for loans from carriers, adding that "if such a fund had been diligently acquired by

the commission it would have been sufficient to meet the present requirements of the Reconstruction Finance Corporation, in so far as the applications of railroads for loans are concerned." However, the bill also provides for calculating excess income on a three-year average, which would greatly reduce the estimated recapture liability, and for refunds or adjustments if, after a hearing, the commission finds it has fixed a valuation too

low or has otherwise collected too much. It also provides for a two-year moratorium on payments to "assist the weak carriers in meeting the requirement for the payment of excess earnings," and that loans may be made from the fund at a rate of interest to be fixed by the commission as the "then current interest rate of securities of like character." A carrier failing to pay up within eight months from the close of the year would be sub-

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 171 Steam Railways, Including 17 Switching and Terminal Companies.

FOR THE MONTH OF DECEMBER, 1931 AND 1930

Item	United States		Eastern District		Southern District		Western District	
	1931	1930	1931	1930	1931	1930	1931	1930
Average number of miles operated	242,741.49	242,757.99	60,239.31	60,340.18	46,130.07	46,105.66	136,372.11	136,312.15
Revenues:								
Freight	\$214,443,338	\$280,865,699	\$92,525,004	\$118,564,924	\$12,275,694	\$55,251,850	\$79,642,640	\$107,048,925
Passenger	40,577,246	55,424,209	23,450,688	30,773,269	8,849,621	7,259,027	12,276,937	17,391,913
Mail	10,567,613	11,316,820	4,106,384	4,273,913	1,651,788	1,748,031	4,809,441	5,294,876
Express	6,289,370	9,126,753	2,789,226	3,852,151	926,889	1,538,267	2,573,255	3,736,335
All other transportation	10,062,289	12,388,168	5,864,349	6,987,886	775,015	1,121,473	3,422,925	4,278,809
Incidental	6,415,422	8,045,761	3,500,815	4,404,811	831,047	1,041,033	2,083,560	2,599,867
Joint facility—Cr.	539,650	1,092,149	d 28,192	417,823	141,958	163,782	425,884	510,344
Joint facility—Dr.	263,504	301,327	69,826	79,589	22,822	24,146	170,856	197,592
Railway operating revenues	288,631,424	377,958,232	132,138,448	169,195,188	51,429,190	68,099,367	105,063,786	140,663,677
Expenses:								
Maintenance of way and structures	30,325,765	44,020,221	12,581,296	18,929,063	6,142,674	7,759,339	11,601,795	17,331,819
Maintenance of equipment	66,683,830	81,129,156	27,428,431	40,461,107	10,917,637	13,069,864	28,337,762	27,598,185
Traffic	9,061,667	9,960,044	3,479,201	3,767,293	1,675,706	1,807,097	3,906,760	4,385,654
Transportation	117,958,370	144,331,616	57,075,186	68,121,735	18,685,318	23,306,515	42,197,866	52,903,366
Miscellaneous operations	3,063,303	3,960,798	1,541,195	1,937,337	334,201	433,829	1,187,907	1,569,632
General	15,115,054	15,975,697	6,716,978	6,992,510	2,526,055	2,722,084	5,872,021	6,261,103
Transportation for investment—Cr.	768,731	1,415,557	266,220	328,838	88,298	223,543	414,213	863,176
Railway operating expenses	241,439,258	297,961,975	108,556,067	139,880,207	40,193,293	48,895,185	92,689,898	109,186,583
Net revenue from railway operations	47,192,166	79,996,257	23,582,381	29,314,981	11,235,897	19,204,182	12,373,888	31,477,094
Payroll tax accruals	16,205,824	20,131,707	7,672,767	7,461,900	3,171,819	3,780,879	5,361,238	8,888,928
Uncollectible ry. revenues	134,964	197,948	53,563	108,707	27,261	33,981	54,140	55,260
Railway operating income	30,851,378	59,666,602	15,856,051	21,744,374	8,036,817	15,389,322	6,958,510	22,532,906
Equipment rents—Dr. balance	7,174,337	7,673,147	4,256,768	4,026,944	241,363	182,245	2,676,206	3,463,958
Joint facility rent—Dr. balance	2,413,878	2,662,978	1,335,572	1,741,023	215,844	198,948	862,462	723,007
Net railway operating income	21,263,163	49,330,477	10,263,711	15,976,407	7,579,610	15,008,129	3,419,842	18,345,941
Ratio of expenses to revenues (per cent)	83.65	78.83	82.15	82.67	78.15	71.80	88.22	77.62

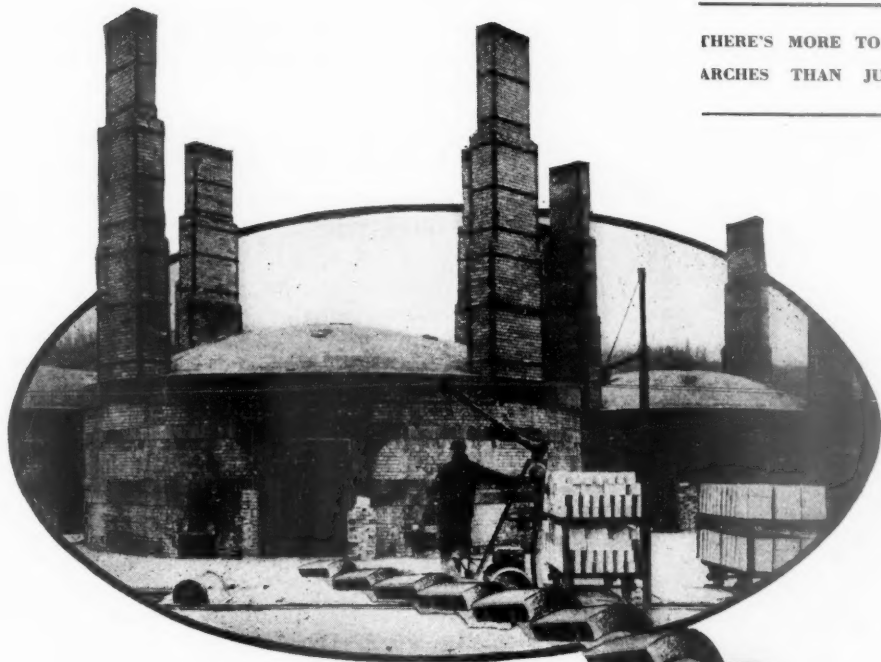
FOR TWELVE MONTHS ENDED WITH DECEMBER, 1931 AND 1930

Average number of miles operated	242,848.94	242,697.39	60,271.58	60,357.85	46,136.15	46,128.26	136,441.21	136,211.28
Revenues:								
Freight	\$3,256,489,592	\$4,085,436,895	\$1,370,056,166	\$1,731,140,143	\$619,368,305	\$749,220,070	\$1,267,065,121	\$1,605,076,682
Passenger	551,054,239	729,619,304	317,179,675	404,107,861	66,330,439	94,078,024	167,544,125	231,433,419
Mail	105,429,148	111,461,728	40,846,714	42,577,548	17,609,445	18,499,652	46,972,989	50,384,528
Express	83,027,244	114,668,938	37,082,893	51,400,076	13,070,366	16,919,946	32,873,985	46,348,916
All other transportation	142,157,141	176,281,183	82,553,739	102,432,505	10,650,507	13,180,654	48,952,895	60,668,024
Incidental	90,727,052	116,523,157	48,392,355	60,781,846	12,270,407	15,089,697	30,064,290	40,651,614
Joint facility—Cr.	11,089,058	13,341,066	3,333,311	4,559,745	2,006,471	2,335,039	5,749,276	6,446,282
Joint facility—Dr.	3,386,125	3,666,637	890,377	1,093,903	301,841	391,907	2,193,907	2,180,827
Railway operating revenues	4,236,587,349	5,343,665,634	1,898,554,476	2,395,905,821	741,004,099	908,931,175	1,597,028,774	2,038,828,638
Expenses:								
Maintenance of way and structures	536,305,045	713,340,076	225,704,272	303,341,561	103,347,844	124,365,906	207,252,929	285,632,609
Maintenance of equipment	829,455,029	1,027,052,636	380,308,106	479,482,683	149,872,076	181,998,210	299,274,847	365,571,743
Traffic	117,608,139	128,206,263	45,835,705	49,134,641	21,705,299	23,675,488	50,067,135	55,396,134
Transportation	1,564,792,629	1,875,232,305	740,071,711	881,998,259	254,847,666	299,906,841	569,873,252	693,327,205
Miscellaneous operations	41,584,318	52,629,696	20,292,941	24,812,494	4,682,805	6,052,099	16,608,572	21,765,103
General	183,471,950	193,369,794	80,280,179	84,668,001	31,919,421	32,787,218	71,272,350	75,914,575
Transportation for investment—Cr.	7,554,754	13,225,708	1,601,746	2,649,555	877,475	1,272,310	5,075,533	9,303,843
Railway operating expenses	3,265,662,356	3,976,605,062	1,490,891,168	1,820,788,084	565,497,636	667,513,452	1,209,273,552	1,488,303,526
Net revenue from railway operations	970,924,993	1,367,060,572	407,663,308	575,117,737	175,506,463	241,417,723	387,755,222	550,525,112
Railway tax accruals	307,707,253	353,561,790	127,578,320	144,890,671	57,059,189	65,813,652	123,069,744	142,857,467
Uncollectible ry. revenues	903,275	1,051,823	337,859	443,953	181,785	181,209	383,631	426,661
Railway operating income	662,314,465	1,012,446,959	279,747,129	429,783,113	118,265,489	175,422,862	264,301,847	407,240,984
Equipment rents—Dr. balance	99,785,464	99,330,366	51,048,494	49,810,196	4,541,486	822,182	44,195,484	48,697,988
Joint facility rent—Dr. balance	31,433,040	28,260,451	17,304,107	15,095,162	3,246,127	2,788,141	10,882,806	10,377,148
Net railway operating income	531,095,961	884,856,142	211,394,528	364,877,755	110,477,876	171,812,539	209,223,557	348,165,848
Ratio of expenses to revenues (per cent)	77.08	74.42	78.53	76.00	76.32	73.44	75.72	73.00

d Deficit or other reverse items.

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

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THERE'S MORE TO SECURITY
ARCHES THAN JUST BRICK

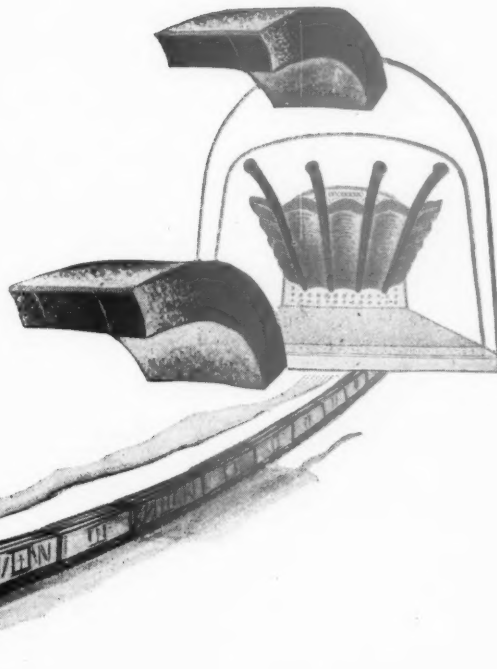
Anything Less Than A Complete Arch Is False Economy

TO let the desire for reduced inventory result in a locomotive leaving any roundhouse without a full set of Arch Brick is poor economy.

Even a single missing Arch Brick will soon waste many times its cost in fuel and in locomotive efficiency.

To spend the fuel dollar efficiently, every locomotive Arch must be maintained 100%.

Be sure your stocks on hand are ample to provide fully for all locomotive requirements, so that locomotive efficiency may be maintained.



**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion
Specialists

ject to a penalty of \$500 a day, unless granted a moratorium.

No changes would be made in the rate-making rule except that the commission would be required to make public each year what percentage constitutes a fair return, so that, according to the press statement, it would at all times have the power "even after fixing the value in accordance with the law of the land," to regulate the return "to meet economic conditions" and influence the volume of traffic "by giving consideration to the necessary rate of return which will induce a sufficient volume of traffic, even in times of depression, to permit the railroads to meet their operating expenses."

Railroad Bills in Congress

Representative Parker, of New York, has introduced in Congress a bill, H.R. 9390, providing that every common carrier by water in interstate commerce, "whether the business of such carrier be publicly or privately owned and controlled," shall be subject to the jurisdiction of the Interstate Commerce Commission for rate-fixing purposes and that the commission shall have full jurisdiction upon the inland waterways of the United States for the purpose of regulating interstate commerce.

Representative Rayburn, of Texas, chairman of the House committee on interstate and foreign commerce, has introduced H.R. 9268 to provide for the regulation of freight forwarding companies by the Interstate Commerce Commission. Such a provision was recommended by the commission in its annual report. Mr. Rayburn has also introduced H.R. 9205, to amend paragraph 4 of section 15 of the interstate commerce act, as recommended by the commission.

Representative Fulmer, of South Carolina, has introduced House Joint Resolution 281 to create a commission to investigate the problems of the railroad industry, to consist of five appointed by the President, fairly representative of the interests of the public, of agriculture, of labor, of the railroads, and of general trade and business.

Southern Pacific to Adjust Rates

Objectionable rate features to which the California Railroad Commission took exception in the recent decision on the complaint against the Pacific Motor Transport Company, a subsidiary of the Southern Pacific and the Pacific Electric, reported in the *Railway Age* of February 13, will be corrected as promptly as possible by the Southern Pacific, according to an announcement by W. A. Worthington, vice-president. The decision found that a railroad may not transport freight through a subsidiary at rates less than those maintained by the railroad itself.

In a larger sense, however, the decision was a victory for the Southern Pacific and its subsidiary. The complainants in the case, which were independent trucking companies, had sought to prove that the operations of the Pacific Motor Transport Company were illegal. In no sense, Mr. Worthington said, did the

decision question the legality of the motor transport company as an "express company." The decision held only that the rates of the motor transport company and those of the parent organizations, the Southern Pacific and the Pacific Electric, should be so revised that charges for ordinary rail service would not be greater than the charges for the service offered by the motor transport company.

Appoint Committee on Uniform Pension Plan

The advisory council of the Association of Railway Executives, meeting in New York on February 18, appointed a committee to confer with the railway unions on the formulation of a uniform pension plan. The personnel of the committee is as follows: F. V. Whiting (chairman), chairman of the pension board of the New York Central; F. J. Fell, vice-president and comptroller, Pennsylvania; R. M. Hogan of the president's office of the Atchison, Topeka & Santa Fe; W. M. Kennedy, superintendent, relief department, Baltimore & Ohio; G. R. Martin, vice-president, Great Northern; and J. N. Redfern, manager of the relief, medical, employment and pension department of the Chicago, Burlington & Quincy.

The council discussed, among other things, the proposed report of Director of Service Bartel of the Interstate Commerce Commission on reciprocity in traffic and purchases; the suggestions of the commission in the decision in Ex Parte 103 setting forth possible economies in railroad service and revisions in rates and service to produce more revenue; proposed legislation for the regulation of motor transport; and proposals for amendments to Section 15a of the Interstate Commerce Act.

Club Meetings

The Toronto (Ont.) Railway Club will hold its next meeting at the Royal York Hotel, Toronto, on Monday evening, March 7. There will be a paper on the St. Lawrence Waterway Project, by Professor W. T. Jackman, professor of transportation, University of Toronto.

The Car Foremen's Association of Chicago will hold its next meeting at the Auditorium Hotel on Monday evening, March 14. The discussion will be on the proposed change in the A. R. A. Rules of Interchange.

The Canadian Railway Club will hold its next meeting on Monday evening, March 14, at the Windsor Hotel, Montreal. Sleeping and dining car service will be discussed by W. Pratt, general manager of the sleeping and dining car and hotel department of the Canadian National.

The New York Railroad Club will hold its next meeting on Friday evening, March 18, at 29 West 39th street, New York City. This will be "electrical night" under the auspices of the Westinghouse Electric & Manufacturing Company. Two special fields will be discussed; the new electrification on the Pennsylvania and some demonstrations in the field of recent electrical invention and discovery.

The Car Foremen's Association of St. Louis (Mo.) will hold its next meeting at the American Annex Hotel, St. Louis, on Tuesday evening, March 1. The discussion will be on the changes in the A. R. A. Interchange Rules.

The Northwest Car Men's Association (St. Paul) will hold its next meeting on Monday evening, March 21. The discussion will be on recommended changes in the Interchange Rules.

Foreign

Gross Revenues of British Roads Declined £14,000,000 in 1931

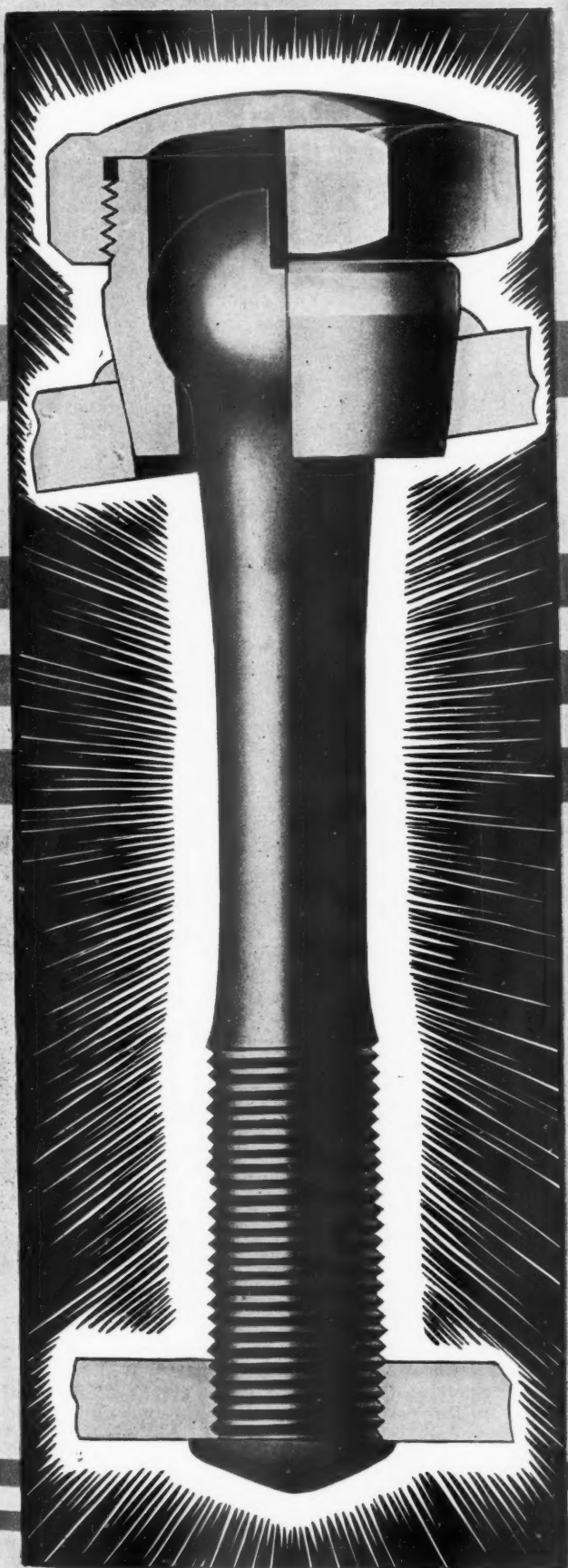
British railways, after experiencing a gross revenue decline of approximately £11,000,000 in 1930, as compared with 1929, will report a further reduction of £14,000,000 or £15,000,000 for 1931, according to the statement of Sir Herbert A. Walker general manager of the Southern and chairman of the Railway General Managers' Conference, in his New Year message.

Sir Herbert adds, however, that when complete figures are available "it will be seen that the railway companies have made strenuous efforts to combat this loss and that considerable savings have been effected." Speaking of electrification, the message suggests that when conditions warrant, it is almost certain that some electrification work will be undertaken, but adds that it is most unlikely that this will take place in the wholesale manner foreshadowed in the report of the Weir Committee. "The capital expenditure suggested by this report," Sir Herbert continues, "is too heavy to be borne by the companies and the return which is likely to accrue from such an expenditure is too nebulous. Railway companies will probably proceed with the electrification of those sections of their systems which would lend themselves to this method of operation and where electrification is likely to produce a sufficiently large increase in traffic to justify the cost."

The report of the Weir Committee, which discussed the possibilities of complete electrification of British railways, was reviewed in the *Railway Age* of May 30, 1931, page 1059.

British Railway Men Honored

The British New Year Honours List for 1932, as announced by the King at the beginning of the current year, contains the names of a number of railway men recognized for their achievements in the field of transportation in many parts of the British Empire. James Milne, general manager of the Great Western Railway of Great Britain, received the honor of knighthood, as did Alfred A. L. Parsons, Financial Commissioner of Railways, Indian Civil Service; while Lieut.-Colonel the Right Hon. Wilfrid William Ashley, Parliamentary Secretary to the Ministry of Transport, 1922-1923, and Minister of Transport from November, 1924, to June,



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1929, was created a baron. Four other railway officers located in Australia, India or the Sudan, and two officials of the British Ministry of Transport received lesser honors.

Mr. Milne entered the service of the Great Western in 1904, as an apprentice in the locomotive department, spending the next 15 years in the mechanical and operating departments of that road. In September, 1919, he was appointed Director of Statistics for the Ministry of Transport, and was later selected to assist the Committee on National Expenditure. Subsequently, except for a short period of service with the Inchcape Committee on Indian Retrenchment, for which he received the distinction of C. S. I. (Commander of the Star of India), he has been continuously connected in an executive capacity with the Great Western, succeeding Sir Felix J. C. Pole as general manager on July 8, 1929. With Mr. Milne's elevation to knighthood, the chief executive offices of all four British group railways will be of that rank.

Soviet Railways in 1931

"No important branch of national economy in the Soviet Union has been subjected to greater criticism during the past year than railway transportation," according to the leading article in the January 1 issue of the Economic Review of the Soviet Union, published by the Amtorg Trading Corporation, New York. "The Soviet press has been vigorous in its condemnation of practically every department of the railway service, which has failed to keep pace with the requirements of the great expansion in industry and new construction, the opening up of hitherto unexploited districts and the progress made in industrializing and mechanizing agriculture."

"Nevertheless," the article continues, "railway transportation has made considerable progress in the past few years. In all important departments the pre-war level of operations has been surpassed. The total mileage has increased over 45 per cent (from 36,600 miles in 1913 to 53,100 miles in 1931); the volume of freight is now about two and one-half times as great as the pre-war, and passenger traffic in 1930 was nearly three times the pre-war figure."

Construction of new lines, according to the same survey, is proceeding rapidly, 3,168 kilometers (1,980 miles) of new line being completed in 1931; 2,145 miles being

double-tracked, and work on many additional new lines being started, at a total expenditure of 425,000,000 rubles (\$219,000,000). These achievements, however, represented, up to October 1, 1931 (the end of the 1930-1931 fiscal year), completion of only 57 per cent of the new construction program and 73 per cent of the double-tracking program.

Like the construction of new lines, the building of rolling stock also fell below the year's program, only a relatively small proportion of the 1,028 locomotives and 60,000 freight cars scheduled for completion during the year being actually delivered. Freight cars in service at the end of the year numbered 480,000, mostly of the small, four-wheeled type; passenger cars totaled about 20,000, and locomotives between 18,000 and 19,000. Work on the new Lugansk locomotive plant, with an estimated annual capacity of 1,080 heavy units, has been scheduled for completion by October 1, 1932, and is expected largely to remedy the present production deficiency.

Traffic for 1930-1931, which, it had been estimated at the beginning of the year, would exceed the original estimates for 1932-1933, the final year of the Five-Year Plan, fell considerably below the anticipated figures. Although complete figures are not yet available, freight loadings for nine months totaled about 175,000,000 tons, against an estimated movement for the year of 340,000,000 tons and actual 1929-1930 loadings of 238,000,000 tons. Passenger traffic made a much better showing, the 308,200,000 passengers carried in the first half of 1931 exceeding the figure for the corresponding period of 1930 by 24.5 per cent, and being more in line with the estimated year's total of 732,000,000.

Progress on plans for modernizing Soviet railroads, decided on in conjunction with American experts and outlined at the beginning of 1931, which include the extensive introduction of block signaling, automatic couplings, air brakes and electrification, is reported as being far from satisfactory, only one-fifth of the electrification program and a small part of the signaling program being completed in the first nine months. These shortcomings are caused, says the Economic Review, by "delays in the construction of factories for railroad supplies, which were in turn retarded through lack of supplies of necessary materials." The present electrification program includes the conversion of 2,010 miles of line to electric traction within the next two years, and the construction of 30 electric locomotives in 1932. Most of the lines now scheduled for electrification are in heavy-traffic mining sections, electrification primarily for passenger service being planned on only 295 route miles.

The deficiencies evident in 1931 were attributed, at the October conference of the Central Committee of the Communist Party, to "changes of personnel, lack of individual responsibility, the practice of keeping the difference of pay between unskilled and skilled labor at too low a margin, and in general to organizational weaknesses." Much more can be accom-

plished, however, even with present forces and equipment, by greater rationalization of work, in the opinion of the new Commissar for Transportation, A. A. Andreyev.

Equipment and Supplies

FREIGHT CARS

THE NORFOLK & WESTERN is building four tank cars of 16,000 gal. capacity at its Roanoke, Va., shops.

THE PACIFIC FRUIT EXPRESS is considering whether to purchase 100 refrigerator cars or build them in the Roseville shops of the Southern Pacific.

IRON & STEEL

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is expected to enter the market for 16,000 tons of rails and 3,000 to 4,000 tons of track fastenings.

SIGNALING

THE NEW YORK, NEW HAVEN & HARTFORD has ordered from the Union Switch & Signal Company 46 searchlight signals for installation at New Haven, Conn.

THE NEW YORK RAPID TRANSIT COMPANY has contracted with the General Railway Signal Company for the installation of 181 automatic block signals on its lines in Brooklyn, (New York City); on the Fulton street line, 103 signals between Tillary street and Atlantic avenue; on the Myrtle avenue line 78 signals between Broadway and Adams street. Color light signals will be used.

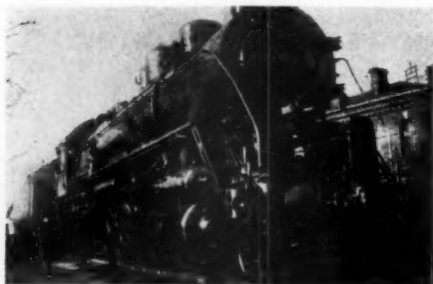
MISCELLANEOUS

THE WABASH is asking for prices for the installation of air-conditioning equipment in five coaches.

THE CHICAGO, ROCK ISLAND & PACIFIC is asking for prices for the installation of air conditioning equipment in five dining cars.

THE SOUTHERN PACIFIC has placed a contract with the Pullman Car & Manufacturing Corporation for the installation of air conditioning equipment in 14 dining cars to be used on the San Francisco Overland Limited and the Golden State Limited.

THE ATCHISON, TOPEKA & SANTA FE is applying air-conditioning equipment to 25 dining cars in its Topeka, Kan. shops, several types of air-conditioning equipment being used. This company plans eventually to equip all its dining cars with air-conditioning equipment.



One of the Five 2-10-2 Type Locomotives Delivered to the Soviet Railways During 1931 by the Baldwin Locomotive Works

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TRACK MATERIALS



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Uniform Quality ...**



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SUBSIDIARY OF UNITED STATES STEEL CORPORATION
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SPIKES • BOLTS • ANGLE BARS • TIE PLATES

Supply Trade

Edwin S. Woods & Company have moved their office to 4710 West Division street, Chicago.

The Barber-Greene Company, Aurora, Ill., has appointed the **Boehck Equipment Company**, Milwaukee, Wis., its representative in that state.

Charles N. Stoddard, vice-president of the **Greenfield Tap & Die Corp.**, Greenfield, Mass., has been elected president and general manager, to succeed **Francis G. Echols**, retired.

A. E. Ballin, formerly president of the **McIntosh & Seymour Corporation**, has been elected vice-president in charge of sales and engineering of the **Nordberg Manufacturing Company**, Milwaukee, Wis.

Harold B. Ressler, vice-president of **Joseph T. Ryerson & Son, Inc.**, Chicago, has had his jurisdiction extended to include the management of the St. Louis plant. **R. B. Wilson**, manager of sales of the St. Louis plant, will be the senior resident executive during Mr. Ressler's absence.

The General Railway Signal Company purchased at a receivership sale on February 16 all of the assets of the **Railroad Supply Company**, Chicago, excepting those of its tie plate division. The trustee of the **Railroad Supply Company** has turned over to **E. H. Bell**, former president, and now president of the **Track Supply Company**, all matters pertaining to the tie plate business of the former **Railroad Supply Company**.

Chicago Railway Equipment Company

The annual report of the **Chicago Railway Equipment Company** for 1931 shows a net loss of \$525,003 for 1931 after depreciation, federal taxes and write-down of inventories, as compared with net profits of \$261,455 in 1930. The loss for 1931 is the first the company has reported since 1894. At the close of the year the company had total current assets of \$2,751,687 and current liabilities of \$88,138, as compared with \$3,510,629 and \$102,863, respectively, a year previous. Current assets for 1931 include \$140,000 of United States treasury certificates and notes deposited on income and profits tax appeal.

Baldwin Locomotive Works

The **Baldwin Locomotive Works**, for the year ending December 31, 1931, reported a consolidated net loss of \$4,122,759 after a \$1,800,190 provision for depreciation and interest charges of \$1,140,599. This net loss, together with the payment of \$700,000 in dividends on the preferred stock, an addition of \$1,400,000 to the reserve for losses from bad debts and other sundry adjustments, reduced the surplus account by \$6,376,517 as compared with the January 1, 1931 surplus.

The entire loss for the year resulted

from the operation of the locomotive business, the report states, since the subsidiary companies as a whole made a small profit. Consolidated gross sales for the year totaled \$20,436,343 as compared with 1930 sales of \$49,872,456; sales of locomotive products dropped from a 1930 gross of \$31,026,055 to \$6,197,036 in 1931.

George H. Houston, president, in his remarks to the stockholders attributes this loss in locomotive business to the "sharply reduced buying power of the railroads," and adds that "no substantial improvement in locomotive sales can be expected until the general condition of the railroads has been improved."

The balance sheet shows current assets of \$20,034,811 and current liabilities of \$1,921,335. Cash and United States treasury notes totaled more than \$9,000,000 and were thus equal to nearly five times the total current liabilities.

The consolidated statement of profit and loss for the year follows:

Sales	\$20,436,343	
Less:		
Cost of Sales, including Selling, Administrative and General Expense	\$21,581,420	
Provision for Depreciation	1,800,190	23,381,610
Operating Loss	\$2,945,267	
Other Income:		
Dividends	\$78,638	
Interest and Miscellaneous	740,537	819,175
Operating Loss less Other Income		\$2,126,092
Other Expenses:		
Interest	\$1,140,599	
Miscellaneous	494,650	1,635,249
Loss before Federal Income Tax	\$3,761,341	
Provision for Federal Income Tax	60,000	
Loss for the Year	\$3,821,341	
Equity of Minority Stockholders in Net Profit of The Midvale Company		301,418
Loss Accrued to The Baldwin Locomotive Works		\$4,122,759

OBITUARY

William J. Allen, treasurer of the **St. Louis Frog & Switch Co.**, died on February 18.

John Walton Ensign, district manager in charge of the **Huntington, W. Va.**, plant of the **American Car & Foundry Company**, died on February 18 at his home in **Huntington** after a brief illness, at the age of 61. He began work at the age of 14 with his father who was managing executive of the **Ensign Manufacturing Company**, and later represented this company in **Honolulu**; this was one of the original companies included in the formation of the **American Car & Foundry Company** in 1899. Mr. Ensign, subsequently served in the general offices of the **American Car & Foundry Company** at **St. Louis, Mo.**, and later succeeded his father as district manager at **Huntington**, which position he held at the time of his death. Mr. Ensign had taken an active part in civic affairs, having served as mayor of **Huntington**.

TRADE PUBLICATION

FEEDWATER HEATER INSTRUCTIONS.—The chapters of Book No. 205, "Instructions

for operating The Coffin Feedwater Heater System," issued by the **J. S. Coffin, Jr., Company**, **Englewood, N. J.**, contain a description of the function, operation and care of the individual units of the system, a list of operating questions and answers, and diagrammatic drawings showing two locations of the pump—ahead of the trailer and rear of the trailer. Changes and refinements in the equipment have been incorporated in this revised edition, and the subjects of operation and maintenance have been simplified and enlarged upon.

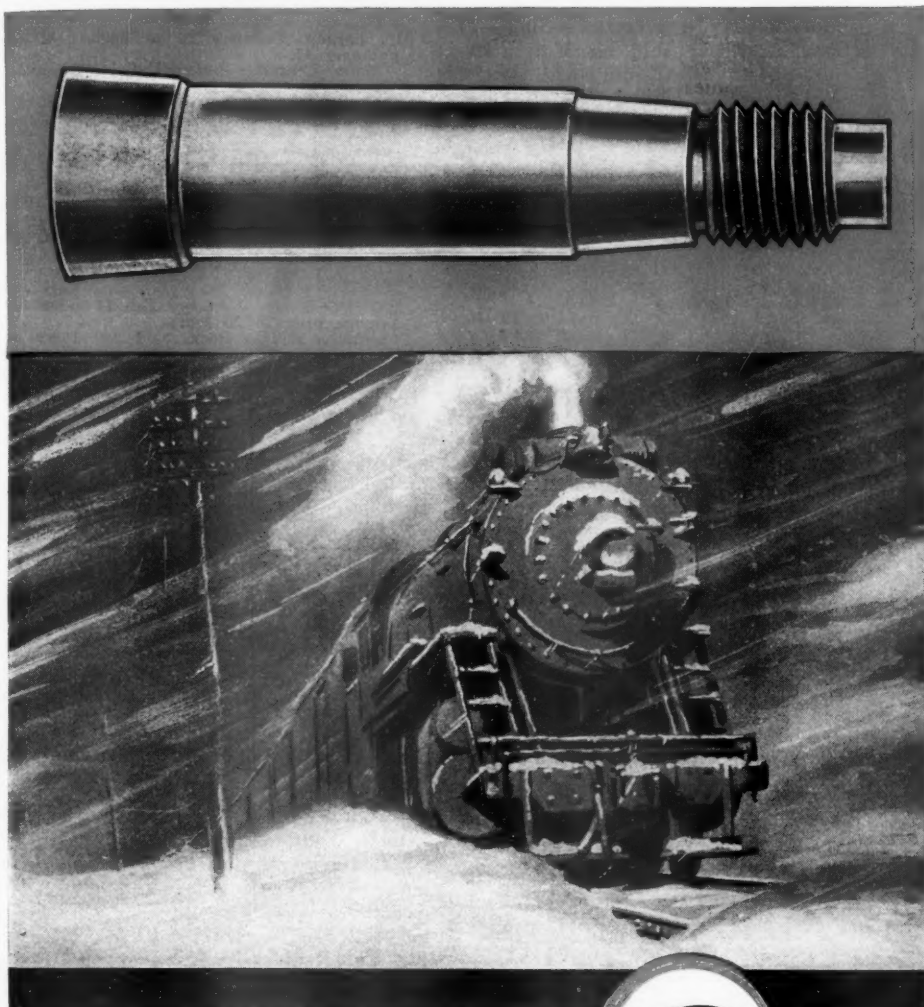
Construction

PUBLIC SERVICE COMMISSION OF NEW YORK.—The **New York Public Service Commission** has approved revised plans and specifications and a revised estimate of cost amounting to \$221,450 for the elimination of the **West Main street crossing of the Buffalo, Rochester & Pittsburgh** (now the **Buffalo-Rochester district of the Baltimore & Ohio**), in **LeRoy, N. Y.** The commission has closed proceedings for the elimination of the **State street crossing of the Erie in Dalton, N. Y.**, and of the **Troup street crossing of the Pennsylvania in Rochester, N. Y.** Estimates of cost and revised plans for the elimination of the **Wildwood avenue crossing of the Erie in Salamanca, N. Y.**, have been approved, and proceedings for the elimination of the **Rosendale road crossing of the New York Central in Kingston, N. Y.**, have been closed, by the commission.

TEXAS PACIFIC-MISSOURI PACIFIC TERMINAL RAILROAD OF NEW ORLEANS.—This company has entered into an agreement with the **United States government** for the construction of a double-track bascule bridge over the **intracoastal canal at Harvey, La.**, in which the work will be carried out by the railroad at government expense. The new bridge, which will replace two existing swing draw spans, will afford a clear channel of 75 ft. with a 40-ft. approach span at each end. It will require about 5,000 cu. yd. of excavation, 2,400 cu. yd. of concrete masonry, 70,000 lb. of reinforcing steel and about 44,000 lin. ft. of 80-ft. foundation piling, in addition to a considerable amount of other work such as roadbed grading, track changes and signal work. Plans and specifications for the project are now in the hands of government engineers for approval.

WABASH.—This road's tentative budget for 1932 includes items for the reconstruction of an overhead bridge at **Canal boulevard, Toledo, Ohio**, at an estimated expenditure of about \$71,500, and for the installation of grain-drying equipment at the **Rialto grain elevator at Chicago**, at a cost of about \$48,000.

WINTER GARDEN BELT.—The **Interstate Commerce Commission** has denied this company's application for authority to construct a line from **Asherton, Tex.**, to **Carrizo Springs, Eagle Pass and Quemada, 70 miles**.



COLD WEATHER **IS HARD ON ORDINARY BOLTS**

Cold weather embrittlement of ordinary iron and steel is the cause of many bolt failures. « But cold never bothers Agathon Engine Bolt Steel. This alloy material retains its toughness at as low temperatures as are found in this country. « In addition Agathon Engine Bolt Steel possesses the fatigue resistance that in the past made iron the favored material. Unlike iron, it is uniform in composition and free from slag pockets, seams or inclusions. « Eleven large railroads have standardized on Agathon Engine Bolt Steel.

Toncan Iron Boiler Tubes, Pipe, Plates, Rivets, Staybolts, Tender Plates and Firebox Sheets
Sheets and Strip for special railroad purposes
Agathon Alloy Steels for Locomotive Parts
Agathon Engine Bolt Steel • Nitralloy
Agathon Iron for pins and bushings • Agathon

Staybolt Iron • Culverts • Climax Steel Staybolts
Upon Bolts and Nuts • Track Material
Maney Guard Rail Assemblies • Enduro
Stainless Steel for dining car equipment, for
refrigeration cars and for firebox sheets
Agathon Nickel forging Steel (20-27 Carbon)



C E N T R A L A L L O Y D I V I S I O N

REPUBLIC STEEL CORPORATION
MASSILLON OHIO



Financial

ALTON.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon and remove its line from Barnett Junction to Carrollton, Ill., 38.12 miles.

ATCHISON, TOPEKA & SANTA FE.—Lease.—This company has applied to the Interstate Commerce Commission for authority to acquire control, by renewal of a lease, of the property of the California, Arizona & Santa Fe.

BESSEMER & LAKE ERIE.—Tentative Recapture Report.—The Interstate Commerce Commission has issued a tentative recapture report finding the value of this company's property for rate-making purposes to have ranged from \$56,125,000 in 1920 to \$48,975,000 in 1927, and finding that the company earned excess income amounting to \$14,698,374 for that period. The report was accompanied by an order directing the company to pay by April 4, \$6,906,907, representing the unpaid balance of half the excess after deducting a partial payment already made on account, unless protest is filed and a hearing asked.

CHICAGO & NORTH WESTERN.—Bonds.—This company has been authorized by the Interstate Commerce Commission to issue \$6,000,000 of 5 per cent first and refunding mortgage bonds, to be pledged as collateral for short-term notes.

ERIE.—Bonds.—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of \$25,000,000 of refunding and improvement mortgage 6 per cent bonds, series of 1932, in partial reimbursement of capital expenditures, and to issue \$384,000 of general lien 4 per cent bonds to be pledged with the trustee of the refunding and improvement mortgage.

GULF COAST LINES.—Proposed Recapture Report.—The Interstate Commerce Commission has made public a proposed recapture report by Examiner C. I. Kephart, finding that these lines, the New Orleans, Texas & Mexico et al., had recapturable excess income amounting to \$256,822 for 1920, \$190,930 for 1922 and \$626,128 for 1923.

GULF, COLORADO & SANTA FE.—Lease.—The Interstate Commerce Commission has authorized this company to acquire control, by lease, of the property of the Cane Belt.

ILLINOIS CENTRAL.—New Director.—Eugene W. Stetson, vice-president of the Guaranty Trust Company of New York, has been elected a director of this company.

KANSAS CITY SOUTHERN.—Lease.—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the property of the Texarkana & Fort Smith located in Texas. The property in Arkansas is already under lease. Applicant owns all the stock, except directors' qualifying shares, of the T. & F. S.

MOUND CITY & EASTERN.—Sale.—This company will be sold on March 25 at Leola, S. D., in conformity with an order issued by the United States District Court in favor of the First Minneapolis Trust Company and A. B. Whitney, with notice served on the Mindak Construction Company, the Mound City & Eastern and W. M. Jahnig and L. M. Davis, contractors. The sale is a foreclosure of a mortgage of \$203,381 entered into by the Mindak Construction Company which constructed that portion of the railroad from Leola to Long Lake. Work was stopped on the line in 1929 because of lack of funds.

NORFOLK & WESTERN.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Lenore, W. Va., to Wayne, 53.8 miles.

PENNSYLVANIA.—Stock.—The Pittsburgh, Fort Wayne & Chicago has applied to the Interstate Commerce Commission for authority to issue and deliver to the Pennsylvania \$25,752,000 of common stock to reimburse the parent company for improvements, betterments and additions to the leased property from 1923 to 1930. The Pennsylvania also asked authority to assume obligation and liability in respect of the stock.

ST. LOUIS & HANNIBAL.—Abandonment.—Examiner H. C. Davis of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the line from Bowling Green, Mo., to Gilmore, 52.6 miles.

SEABOARD AIR LINE.—Abandonment.—Examiner Thomas F. Sullivan of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the line from Archer, Fla., to Cedar Key, 41.5 miles.

SOUTHERN PACIFIC.—Valuation.—The Interstate Commerce Commission has issued a final valuation report on the properties constituting the Atlantic system of the Southern Pacific, as of June 30, 1918, finding the final value for rate-making purposes of the properties used for common-carrier purposes to be \$160,265,063.

WABASH.—Loan from R.F.C.—In last week's issue it was reported that the Interstate Commerce Commission had approved an application of the receivers for a loan to the extent of \$7,173,800 from the Reconstruction Finance Corporation for three years, to meet immediate requirements. The item failed to state that the corporation had announced the making of such a loan to the Wabash on February 13, this being the first loan to be made to a railroad by the corporation.

Dividends Declared

Boston & Albany.—2 per cent, quarterly, payable March 31 to holders of record February 29.
Boston & Providence.—2½ per cent, quarterly, payable April 1 to holders of record March 19.
Consolidated Railroads of Cuba.—Preferred, 50c, quarterly, payable April 1 to holders of record March 10a.
Cuba Railroad.—Preferred, 1½ per cent, quarterly, payable May 2 to holders of record April 15.

Delaware & Bound Brook.—2 per cent, quarterly, payable February 20 to holders of record February 17.

Maine Central.—Preferred dividend action deferred.

New York, Lackawanna & Western.—\$1.25, quarterly, payable April 1 to holders of record March 14.

Philadelphia, Germantown & Northern.—\$1.50, quarterly, payable March 4 to holders of record February 21 to March 3.

Southern Pacific.—Common dividend omitted.

Average Prices of Stocks and of Bonds

	Feb. 23	Last week	Last year
Average price of 20 representative railway stocks..	31.59	35.65	96.47
Average price of 20 representative railway bonds..	69.46	69.07	94.14

Railway Officers

EXECUTIVE

Edward G. Buckland, chairman of the board and former president of the New York, New Haven & Hartford, who has been elected president of the newly-organized Railroad Credit Corporation, has been engaged in railway legal and financial work for the past 34 years, during which time he has been continuously connected with the New Haven. Mr. Buckland was born at Buffalo, N. Y., on December 31, 1866, and was educated at Washburn College, Topeka, Kans., (B. A., 1887; LL.D., 1921), and at Yale University, New Haven, Conn., (LL. B., 1889; M. A., 1895). For the first nine years following his graduation



Edward G. Buckland

from the Yale Law School (1889-1898), he was engaged as an assistant professor at Yale and as a practicing attorney. In 1898 he entered railway service with the New York, New Haven & Hartford as an attorney, serving in this capacity until 1906. In 1907 he was elected vice-president and general counsel of the New Haven, holding this position until 1924, with the exception of the period from 1918 to 1920, when he served as president. In 1924 Mr. Buckland became vice-president in charge of law, finance and corporate relations, and, five



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The qualities of HUNT-SPILLER *Air Furnace* GUN IRON have become more important to economical operation with each stage of locomotive development.

Most of the leading railroads are applying HUNT-SPILLER *Air Furnace* GUN IRON to locomotive parts to maintain super-power, to meet the demands for super-service and at the same time to insure maximum operating economies.

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Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
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Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
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Parts Finished for Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
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years later, was elected to his present position as chairman of the board. He will continue to fill this position while serving as president of the Railroad Credit Corporation.

E. R. Woodson, who has been elected vice-president and comptroller of the Railroad Credit Corporation, was born



E. R. Woodson

at Roanoke, Va., on June 18, 1889. He attended the National Business College, Roanoke, Pace Accounting Schools, Lewis Schools of Advertising, and National University, Washington, D. C., receiving his LL.B., LL.M., and B.C.S. at the latter. From 1905 to 1907, Mr. Woodson was connected with the Norfolk & Western, serving first as a stenographer and later as statistical clerk in the mechanical department. From 1907 to 1914, he was connected with the Southern, holding the positions of secretary to auditor of disbursements, secretary to auditor and secretary to comptroller, consecutively. In 1911, he was elected secretary and treasurer of the Railway Accounting Officers' Association, which position he still holds.

D. O. Ouellet, who has been elected president and general manager of the American Refrigerators Transit Com-



D. O. Ouellet

pany (owned jointly by the Missouri Pacific and the Wabash), has been in railway work for more than 40 years. His first railway service was with the

Grand Trunk, at Quebec, Que., where he became a yard clerk at the age of 13 years. After serving with various roads as a telegraph operator and dispatcher, Mr. Ouellet went with the Missouri Pacific and in 1916 was appointed special assistant to the general superintendent of transportation. Subsequently he was appointed division superintendent and served successively in this capacity at Wynne, Ark., and McGehee, Osawatomie, Kan., and Van Buren, Ark., being sent to St. Louis, Mo., in 1924 as superintendent in charge of terminals. In the same year Mr. Ouellet was promoted to superintendent of transportation and two years later he was further advanced to general superintendent of transportation, at St. Louis. He was holding the latter position at the time of his election as president and general manager of the American Refrigerator Transit Company on February 15.

FINANCIAL, LEGAL AND ACCOUNTING

A. L. Cupp has been appointed auditor of the Chesapeake Western, with headquarters at Harrisonburg, Pa.

TRAFFIC

Albert A. Zastrow has been appointed general agent for the Illinois Central at Los Angeles, Cal., a newly-created position.

S. A. Dobbs, terminal trainmaster on the Gulf, Mobile & Northern, at New Orleans, La., has been appointed general agent at the same point.

F. M. Jordan, coal freight agent of the Baltimore & Ohio, has been appointed general coal freight agent at Baltimore, Md., succeeding **C. H. Asher**, deceased.

C. P. Wilson, assistant general freight agent of the Fort Smith & Western, with headquarters at Los Angeles, Cal., has been appointed general northern agent for this road, with headquarters at Chicago, where he succeeds **M. L. Schultz**, resigned.

J. P. DeVaughn has been appointed general passenger agent of the Buffalo-Rochester district of the Baltimore & Ohio, with headquarters at Rochester, N. Y. He formerly occupied a similar position with the Buffalo, Rochester & Pittsburgh.

M. L. Costley, general freight agent on the Illinois Central, at New Orleans, La., has been promoted to assistant traffic manager at the same point. **O. C. Stein**, assistant general freight agent at New Orleans, has been promoted to general freight agent at that point to replace Mr. Costley, and has been succeeded by **E. K. Heap**. **R. D. Reeves**, who has been engaged in commercial traffic work, has become connected with the Illinois Central in the newly-created position of assistant traffic manager at Memphis, Tenn. **J. Hattendorf**, assist-

ant traffic manager, and **J. L. Sheppard**, general freight agent, both at New Orleans, have had their headquarters transferred to Chicago. **B. M. Hamilton**, assistant coal traffic manager at Chicago, has been appointed assistant general freight agent at the same point, a newly-created position.

H. C. Mitchell, who was recently appointed general freight agent, solicitation, of the Virginian, was born in Bristol, England, on November 7, 1879. He attended grammar and night high schools at Chicago, Ill., and entered railroad service with the Chicago, Milwaukee & St. Paul (now the Chicago, Milwaukee, St. Paul & Pacific), as an office boy at Chicago in September, 1893. Subsequently he served consecutively as car record clerk, assistant chief clerk, car distributor and freight solicitor until 1907, when he entered the service of the St. Joseph & Grand Island (now part of the Union Pacific), as traveling freight agent, with headquarters at Chicago, Ill. Later he was appointed general agent at Pittsburgh, Pa. During the war period Mr. Mitchell was engaged in government construction work directly under the Rust Engineering Company, at Pittsburgh, as purchasing agent and traffic manager. In 1920, he entered the service of the Virginian as general agent at Pittsburgh, and, in 1922, he was appointed assistant general freight agent, in charge of solicitation, at Norfolk, Va., the position he held until his recent appointment.

C. E. Carlton, who has been promoted to the newly-created position of perishable traffic manager for the Missouri Pacific Lines, with headquarters at St. Louis, Mo., has had broad experience in the railway field. He entered railway service in 1898, as a messenger boy on the Chicago, Burlington & Quincy at Galesburg, Ill., and served in various capacities with this road, the Atchison, Topeka & Santa Fe, the Texas & Pacific and the Houston Belt & Terminal Railroad, until 1911, when he became connected with the Missouri Pacific as



C. E. Carlton

a soliciting freight agent at Houston, Tex. From 1912 until March, 1916, he was commercial agent at the same point, being on the latter date sent to

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Chicago as general agent. Later, Mr. Carlton became general eastern agent for the Gulf Coast Lines (now a unit of the Missouri Pacific Lines), with headquarters at New York. For a year, beginning with April, 1918, he was in the service of the United States Shipping Board as district traffic representative at Houston, at the end of which time he returned to the service of the Gulf Coast Lines as district freight and passenger agent at Houston and New Orleans, La., being returned to New York as general eastern agent in March, 1920. Five years later, Mr. Carlton was appointed assistant freight traffic manager at Houston, again returning to New York as general eastern agent a short time later. In 1927, he was appointed assistant general freight agent, with headquarters at St. Louis, where he was located at the time of his recent promotion to perishable traffic manager.

MECHANICAL

H. B. Nabors, general foreman on the Southern, Lines West, with headquarters at Princeton, Ind., has been promoted to master mechanic at Macon, Ga., to succeed **M. R. Brockman**, who has been transferred to Princeton, to replace **H. G. Stubbs**. Mr. Stubbs has been transferred to Ludlow, Ky., to succeed **J. A. Wilking**, deceased.

ENGINEERING AND SIGNALING

Lucian C. Sprague has been appointed consulting engineer of the Louisiana Southern, with headquarters at New York.

John E. Bebb, who has been promoted to bridge engineer of the Michigan Central, has been engaged in rail-



John E. Bebb

way engineering work on a number of railroads for nearly 27 years. He was born on February 12, 1883, at Cincinnati, Ohio, and was educated at the University of Cincinnati, from which he graduated in June, 1905, with a degree

in civil engineering. While in college, Mr. Bebb spent a number of summers as a rodman on the Cleveland, Cincinnati, Chicago & St. Louis. Immediately after graduation, he entered the service of the Michigan Central, at Detroit, Mich., as a structural draftsman in the bridge department, and served in this capacity and as bridge inspector until 1910, when he was appointed office engineer in the bridge department. He left the Michigan Central in July, 1912, to accept a position as office engineer for the Duluth, South Shore & Atlantic and the Mineral Range, with headquarters at Duluth, Minn. Mr. Bebb returned to the Michigan Central in January, 1917, as assistant bridge engineer at Detroit, in which capacity he served until 1925, when he was placed in charge of the grade separation department, although retaining the title of assistant bridge engineer. His promotion to bridge engineer, with headquarters at Detroit, became effective on February 1.

Hans Ibsen, who has retired as consulting bridge engineer of the Michigan Central, has been with the bridge department of the Michigan Central for more than 41 years. Mr. Ibsen was born in 1862, at Bergen, Norway, and after an education in the schools of that country, he came to the United States at the age of 20 years, where he engaged in preliminary work on a projected line of railroad in Pennsylvania.



Hans Ibsen

For a time Mr. Ibsen served with the Riverside Bridge & Iron Works at Paterson, N. J., and later in the office of the city engineer of St. Paul, Minn., as a draftsman. In 1889 he went to Norway for further technical study, returning to the United States in May, 1890, to enter the bridge department of the Michigan Central, being advanced to bridge engineer in August, 1905. In November, 1916, Mr. Ibsen was appointed consulting bridge engineer, in which capacity he served until his retirement, effective February 1. During this time he was in complete charge of the design and construction of a number of notable bridge structures for the Michigan Central.

Gabriel C. Tuthill, who retired on February 1, as bridge engineer of the Michigan Central, has been connected with the bridge department of that road for nearly 41 years. He was born on January 1, 1865, at Washingtonville, N. Y., and received his education at the University of Michigan, from which he graduated with a degree in civil engineering in 1891. Prior to graduation, Mr. Tuthill engaged in railway location and construction work on lines which now comprise parts of the Pere Marquette and the Wabash. In July, 1891, he went with the Michigan Central as a structural draftsman and bridge inspector at Detroit, Mich. In 1896, Mr. Tuthill was promoted to assistant bridge engineer, in which capacity he supervised the construction of a number of important bridge projects. He was advanced to bridge engineer at De-



Gabriel C. Tuthill

troit on November 1, 1916, which position he held continuously until his retirement.

SPECIAL

T. E. Pratt, chief special agent of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been appointed also superintendent of safety, succeeding **J. A. Carney**, transferred.

OBITUARY

S. P. Stringfellow, assistant freight traffic manager of the Seaboard Air Line, died on February 10.

S. S. Meyer, assistant to the president and auditor of the Denver & Salt Lake, with headquarters at Denver, Colo., died on February 15 of influenza.

Claude Bangs Munyan, assistant general passenger agent of the Cleveland, Cincinnati, Chicago & St. Louis, died at Lexington, Ky., on February 22. He was 58 years of age.

H. R. Lewis, freight traffic manager of the Baltimore & Ohio, with headquarters at Cincinnati, Ohio, died at Birmingham, Ala., on February 21, after a brief illness. Mr. Lewis was 60 years of age.